

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

Yes.

Field ID	Analyte	Qual
SB13F1-1A	Acetone	U*
SB13H1-1A	Acetone	U*
SB13H1-1C	Acetone	U*
SB29A1-3C	Acetone	U*
SB8J1-1A	Acetone	U*
SB29A1-2A	Acetone	U*
SB29A1-2C	Acetone	U*
SB29A1-4A	Acetone	U*
SN8L1-8ARE	Acetone	U*

\* Professional Judgement

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 2738G

Reviewer: John D. Keith

Date Reviewed: 2-1-99

Sample Identification #	Sample Identification #
SB13A1-1A	SB9B9-1A
SB13A1-1C	SB9B9-1B
SB13G1-1A	SB9B3-1A
SB13G1-1C	SB9B3-1C

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

#### SVOCs

Samples SB9B9-1A, SB9B3-1A, and SB9B3-1C were re-analyzed due to internal standard suppression. The more dilute analyses are indicated by the suffix "DL".

These issues are addressed in the appropriate sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### 4.0 Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKN5	Methylene Chloride	3	SB13A1-1C, SB13G1-1A, SB13G1-1C, SB9B9-1A, SB9B3-1A,
VBLKN6	Methylene Chloride Acetone 2-Butanone 4-Methyl-2-Pentanone 2-Hexanone 1,1,2,2-Tetrachloroethane	4 18 6 2 3 1	SB13A1-1A, SB9B9-1B, SB9B3-1C, SB9B3-1CRE
SBLKEQ	Diethyl phthalate Di-n-butyl phthalate Butyl benzyl phthalate Bis(2-Ethylhexyl) phthalate Di-n-octyl phthalate	4 15 2 11 6	SB13A1-1C, SB13A1-1C, SB13G1-1A, SB13G1-1C, SB9B9-1A, SB9B9-1ADL, SB9B9-1B, SB9B3-1A, SB9B3-1ADL, SB9B3-1C, SB9B3-1C,

Field ID	Analyte	New RL	Qualification
SB13A1-1A	Methylene Chloride	10	U
SB13A1-1A	Acetone	17	U
SB13A1-1A	2-Butanone	6	U
SB13A1-1A	4-Methyl-2-Pentanone	5	U
SB13A1-1C	Methylene Chloride	10	U
SB13A1-1C	Acetone	20	U
SB13G1-1A	Methylene Chloride	10	U
SB13G1-1C	Methylene Chloride	10	U
SB9B9-1A	Methylene Chloride	10	U
SB9B9-1B	Methylene Chloride	11	U
SB9B9-1B	Methylene Chloride	11	U
SB9B9-1B	Acetone	23	U
SB9B9-1B	2-Butanone	7	U
SB9B3-1A	Methylene Chloride	13	U
SB9B3-1CRE	Methylene Chloride	16	U
SB13A1-1A	Diethyl phthalate	380	U
SB13A1-1A	Di-n-butyl phthalate	380	U
SB13A1-1A	Butyl benzyl phthalate	380	U
SB13A1-1A	Bis(2-ethylhexyl) phthalate	380	U
SB13A1-1A	Di-n-octyl phthalate	380	U
SB13A1-1C	Diethyl phthalate	360	U
SB13A1-1C	Di-n-butyl phthalate	360	U
SB13A1-1C	Bis(2-ethylhexyl) phthalate	360	U
SB13A1-1C	Di-n-octyl phthalate	360	U
SB13G1-1A	Diethyl phthalate	340	U
SB13G1-1A	Di-n-butyl phthalate	340	U
SB13G1-1A	Butyl benzyl phthalate	340	U
SB13G1-1A	Bis(2-ethylhexyl) phthalate	340	U

Field ID	Analyte	New RL	Qualification
SB13G1-1A	Di-n-octyl phthalate	340	U
SB13G1-1C	Diethyl phthalate	350	U
SB13G1-1C	Di-n-butyl phthalate	350	U
SB13G1-1C	Butyl benzyl phthalate	350	U
SB13G1-1C	Bis(2-ethylhexyl) phthalate	350	U
SB13G1-1C	Di-n-octyl phthalate	350	U
SB9B9-1A	Diethyl phthalate	380	U
SB9B9-1A	Di-n-butyl phthalate	380	U
SB9B9-1A	Bis(2-ethylhexyl) phthalate	380	U
SB9B9-1A	Di-n-octyl phthalate	380	U
SB9B9-1ADL	Diethyl phthalate	1500	U
SB9B9-1ADL	Di-n-butyl phthalate	1500	U
SB9B9-1ADL	Bis(2-ethylhexyl) phthalate	1500	U
SB9B9-1B	Di-n-butyl phthalate	360	U
SB9B3-1A	Diethyl phthalate	350	U
SB9B3-1A	Di-n-butyl phthalate	350	U
SB9B3-1A	Bis(2-ethylhexyl) phthalate	350	U
SB9B3-1ADL	Diethyl phthalate	1400	U
SB9B3-1ADL	Di-n-butyl phthalate	1400	U
SB9B3-1C	Diethyl phthalate	400	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria	DCS RPD	RPD Criteria
N1772.D	Bromomethane	130	66-121		
	Chloroethane	160	78-119		
	Methylene Chloride	115	83-114		
	Acetone	220	29-156		
	1,1-Dichloroethene	125	78-122		
	2-Butanone	245	55-146		
	Carbon Tetrachloride	70	77-127		
	Dibromochloromethane	80	81-121		
	2-Hexanone	180	47-150		

LCS ID	LCS Compound	LCS Recovery	LCS Criteria	DCS RPD	RPD Criteria
N1783.D	Bromomethane	130	66-121		
	Vinyl Chloride	130	63-129		
	Chloroethane	160	78-119		
	Methylene Chloride	130	83-114		
	Acetone	290	29-156		
	1,1-Dichloroethene	125	78-122		
	2-Butanone	260	55-146		
	1,2-Dichloropropane	135	77-125		
	2-Hexanone	200	47-150		
	1,1,2,2-Tetrachloroethane	120	76-118		

Field ID	Analyte	Qualification
SB13A1-1C	Carbon Tetrachloride	UJ
SB13A1-1C	Dibromochloromethane	UJ
SB13G1-1A	2-Butanone	J
SB13G1-1A	Carbon Tetrachloride	UJ
SB13G1-1A	Dibromochloromethane	UJ
SB13G1-1C	2-Butanone	J
SB13G1-1C	Carbon Tetrachloride	UJ
SB13G1-1C	Dibromochloromethane	UJ
SB9B9-1A	2-Butanone	J
SB9B9-1A	Carbon Tetrachloride	UJ
SB9B9-1A	Dibromochloromethane	UJ
SB9B3-1A	2-Butanone	J
SB9B3-1A	Carbon Tetrachloride	UJ
SB9B3-1A	Dibromochloromethane	J
SB9B3-1A	2-Hexanone	J

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
SB9B3-1C	Toluene	131	81-117	Qual detect (J)
SB9B3-1C	Bromofluorobenzene	526	74-121	Qual detect (J)
SB9B3-1CRE	Bromofluorobenzene	254	74-121	Qual detect (J)

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB12C1-1A	Acetone	95/25	29-156	25	20
	Vinyl Acetate	158/159	16-144	1	20
	2-Butanone	181/176	55-146	3	20
	Carbon Tetrachloride	72/78	77-127	8	20
	Trichloroethene	65/59	82-114	10	20
	Bromoform	96/102	68-134	6	20
	4-Methyl-2-Pentanone	172/183	58-141	6	20
	2-Hexanone	167/178	47-150	6	20
	Tetrachloroethene	76/77	78-118	1	20
	1,1,2,2-Tetrachloroethane	130/139	76-118	7	20
SB12C1-1A	2-Methylnaphthalene	107/113	36-112	5	
	2-Chloronaphthalene	133/140	60-118	5	
	Dimethyl phthalate	127/133	01-112	5	
	Dibenzofuran	120/127	52-123	6	
	Diethyl phthalate	119/126	01-114	6	
	4-Bromophenyl-phenylether	140/140	53-127	0	
	Phenanthrene	140/140	54-120	0	
	Di-n-butyl phthalate	139/139	1-118	0	
	Pyrene	127/127	52-115	0	
	Di-n-octyl phthalate	166/153	4-146	8	
	Benzo(b)fluoranthene	180/167	24-159	8	

Field ID	Analyte	Qualification

As noted in Functional Guidelines, if MS/MSD recoveries for organic analyses are outside evaluation criteria, additional QC parameters should be reviewed to determine if qualifications are necessary. No qualification of the data was done based on MS/MSD data alone.

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

Yes.

Field ID	Analyte	Qual
SB13A1-1C	Acetone	U*
SB13A1-1A	Acetone	U*
SB13G1-1C	Acetone	U*
SB9B9-1A	Acetone	U*
SB9B3-1A	Acetone	U*
SB9B3-1C	Acetone	U*

\* Professional Judgement

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 990949

Reviewer: John D. Keith

Date Reviewed: 9-13-99

Sample Identification #	Sample Identification #
AT9-740 C	AT9-740 D
AT9-740 E	AT9-741 A
AT9-741 B	AT9-741 C
AT9-741 D	AT9-741 E
AT9-742 A	AT9-742 B
AT9-742 C	AT9-742 D
AT9-742 E	AT9-743A
AT9-743 B	AT9-743 C
AT9-743 D	AT9-743 E
AT9-744 A	AT9-744 B

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated some metals MS/MSD recoveries exceeded evaluation criteria. These issues are further addressed in the appropriate sections below. No additional problems were noted in the narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

No.

Blank ID	Analyte	Conc.	Assoc. Samples
Water Prep Blank PBST	Lead	0.372 mg/kg	All in SDG
Tissue Prep Blank Clam PBSC	Calcium Magnesium Iron Lead Potassium Sodium Zinc	266.8 mg/kg 188.7 mg/kg 20.73 mg/kg 0.506 mg/kg 1058 mg/kg 2343 mg/kg 15.8 mg/kg	All in SDG

Field ID	Analyte	New RL	Qualification
NA			

All associated calcium, magnesium, iron, lead, potassium, sodium and zinc data for the twenty samples in the SDG were qualified nondetect (U) based on tissue blank sample contamination. No further qualification of the data was required.

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
NA			

Field ID	Analyte	Qualification
NA		

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes

Field ID	Surrogate	Recovery	Criteria	Action
NA				

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes

*Were MS/MSD recoveries within evaluation criteria?*

No

MS/MSD ID	Analyte	MS/MSD Recovery	MS/MSD Criteria
T07441	Silver	29.8	75-125
T07441	Thallium	68.6	75-125

Associated silver and thallium data for sample T07441 ( Field ID AT9-740 C) were qualified estimated (J) based on matrix spike recoveries. No further qualification of the data was required based on MS recoveries.

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

Yes

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 7098-2738C

Reviewer: John D. Keith

Date Reviewed: January 24, 1999

Sample Identification #	Sample Identification #	Sample Identification #
FB121698A	SB16B1-2C	SB16B1-1A
SB3A1-1A	SB16D1-1A	SB16B1-1C
SB3A1-1C	SB16D1-1C	SB16C1-1A
SB12D1-1A	SB16D1-2A	SB16C1-1C
SB12D1-3B	SB16D1-2C	SB16C1-2A
SB16B1-2A	SB16D1-2C	SB16C1-2C
SB17A2-6A	SB17A2-6C	SB27D1-1A

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated the following:

*"The quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant reports and the form I's are calculated using the correct sample weights and percent moistures."*

*The case narrative also indicated that sample SB17A2-6A was analyzed twice due to suppression of internal standard areas and surrogates outside evaluation criteria.*

The concentrations reported on the form I's were recalculated, and verified. The problems are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKMB	Acetone	14	FB121698
VBLKNW1	Methylene Chloride Acetone	2 18	SB3A1-1A SB3A1-1C SB12D1-1A SB12D1-3B SB16B1-2A SB16B1-2C SB16D1-1A SB16D1-1C SB16D1-2A SB16D1-2C
VBLKNX	Methylene Chloride Acetone	10 7	SB12D1-1A SB16B1-1A SB16B1-1C SB16C1-1A SB16C1-1C SB16C1-2A SB17A2-6A SB27D1-1A SB16C1-2C
VBLKNY	Methylene Chloride Acetone 2-Butanone	5 11 2	SB17A2-6ARE
VBLKN1	Methylene Chloride Acetone	4 8	SB17A2-6C
SB3A1-1A	Methylene Chloride Acetone	10 39	U U
SB3A1-1C	Methylene Chloride Acetone	8 45	
SB12D1-1A	Methylene Chloride Acetone	10 15	
SB12D1-3B	Methylene Chloride Acetone	9 52	
SB16B1-2A	Methylene Chloride Acetone	10 47	

Blank ID	Analyte	Conc.	Assoc. Samples
SB16B1-2C	Methylene Chloride	11	
	Acetone	12	
SB16D1-1A	Methylene Chloride	10	
	Acetone	27	
SB16D1-1C	Methylene Chloride	10	
	Acetone	18	
SB16D1-2A	Methylene Chloride	10	
	Acetone	38	
SB16D1-2C	Methylene Chloride	12	U
SB16B1-1a	Methylene Chloride	11	
	Acetone	29	
SB16B1-1C	Methylene Chloride	12	
	Acetone	14	
SB16C1-1A	Methylene Chloride	9	
	Acetone	23	
SB16C1-1C	Methylene Chloride	9	
	Acetone	64	
SB16C1-2A	Methylene Chloride	11	
	Acetone	82	
SB16C1-2C	Methylene Chloride	10	
	Acetone	17	
SB17A2-6A	Methylene Chloride	14	
	Acetone	31	
SB17A2-6ARE	Methylene Chloride	11	
	Acetone	37	

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes, with the exception of the following:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
M1346.D	Chloroethane	125	78-119
	Acetone	170	29-156
N1621.D	Chloroethane	130	78-129
	Acetone	195	29-156
	2-Butanone	190	55-146
	2-Hexanone	165	47-150

Qualifications based on LCS data are summarized below:

Field ID	Analyte	Qualification
SB3A1-1A	2-Butanone	J
SB3A1-1C	2-Butanone	J
SB12D1-1A	2-Butanone	J

Field ID	Analyte	Qualification
SB12D1-3B	2-Butanone	J
SB16B1-2A	2-Butanone	J
SB16B1-2C	2-Butanone	J
SB16D1-1A	2-Butanone	J
SB16D1-1C	2-Butanone	J
SB16D1-2A	2-Butanone	J
SB16A1-1A	Chloroform	J
	1,2-Dichloroethane	UJ
	2-Butanone	J
	Carbon Tetrachloride	UJ
	Bromodichloroethane	UJ
	Dibromochloromethane	UJ
	Trans-1,3-Dichloropropene	UJ
	Tetrachloroethene	UJ
SB16B1-1C	Chloroform	J
	1,2-Dichloroethane	UJ
	2-Butanone	J
	Carbon Tetrachloride	UJ
	Bromodichloroethane	UJ
	Dibromochloromethane	UJ
	Trans-1,3-Dichloropropene	UJ
	Tetrachloroethene	UJ

Qualifications based on LCS data, continued

Field ID	Analyte	Qualification
SB16C1-1A	Chloroform	J
	1,2-Dichloroethane	UJ
	2-Butanone	J
	Carbon Tetrachloride	UJ
	Bromodichloroethane	UJ
	Dibromochloromethane	UJ
	Trans-1,3-Dichloropropene	UJ
	Tetrachloroethene	UJ
SB16C1-1C	Chloroform	J
	1,2-Dichloroethane	UJ
	2-Butanone	J
	Carbon Tetrachloride	UJ
	Bromodichloroethane	UJ
	Dibromochloromethane	UJ
	Trans-1,3-Dichloropropene	UJ
	Tetrachloroethene	UJ
SB16C1-2A	Chloroform	J
	1,2-Dichloroethane	UJ
	2-Butanone	J
	Carbon Tetrachloride	UJ
	Bromodichloroethane	UJ
	Dibromochloromethane	UJ
	Trans-1,3-Dichloropropene	UJ

Field ID	Analyte	Qualification
	Tetrachloroethene	UJ
SB16C1-2C	Chloroform	J
	1,2-Dichloroethane	UJ
	2-Butanone	J
	Carbon Tetrachloride	UJ
	Bromodichloroethane	UJ
	Dibromochloromethane	UJ
	Trans-1,3-Dichloropropene	UJ
	Tetrachloroethene	UJ
SB27D1-1A	Chloroform	J
	1,2-Dichloroethane	UJ
	2-Butanone	J
	Carbon Tetrachloride	UJ
	Bromodichloroethane	UJ
	Dibromochloromethane	UJ
	Trans-1,3-Dichloropropene	UJ
	Tetrachloroethene	UJ
SB17A2-6C	1,2-Dichloroethane	UJ
	2-Butanone	J
	4-Methyl-2-Pentanone	J
SB17A2-6A	All Compounds	J/UJ
SB17A2-6ARE	All Compounds	J/UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes, with the exception of the following:

Field ID	Surrogate	Recovery	Criteria	Action
SB17A2-6A	Bromofluorobenzen e	62	74-121	Qual all J/UJ
SB17A2-6ARE	Toluene-D8	155	81-117	Qual all J/UJ
	Bromofluorobenzen e	61	74-121	

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes, sample SB12D1-1A.

*Were MS/MSD recoveries within evaluation criteria?*

Yes, with the exception of the following:

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB12D1-1A	Vinyl Acetate	162/134	16-144	19	20
SB12D1-1A	Chloroform	85/78	83-114	9	20
SB12D1-1A	Trans-1,3-Dichloropropane	88/79	80-128	11	20
SB12D1-1A	4-Methyl-2-Pentanone	146/136	58-141	7	20
SB12D1-1A	Tetrachloroethane	82/72	78-118	13	20
SB12D1-1A	1,1,2,2-Tetrachloroethane	122/112	76-118	8	20

Field ID	Analyte	Qualification

As noted in Functional Guidelines, if MS/MSD recoveries for organic analyses are outside evaluation criteria, additional QC parameters should be reviewed to determine if qualifications are necessary. No qualification of the data was done based on MS/MSD data alone.

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

See MS/MSD.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

????????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): A2513

Reviewer: John Keith

Date Reviewed: 1/15/1999

Sample Identification #	Sample Identification #
SB10A1-1A	SB19A1-3A
SB10A1-1B	SB19A1-3B
SB10A1-2A	SB22A1-1A
SB10A1-2B	SB22A1-1B
SB10A1-3A	SB22A1-2A
SB10A1-3B	SB22A1-2C
SB19A1-1A	SB22A1-3A
SB19A1-1B	SB22A1-3B
SB19A1-2A	FB1118
SB19A1-2B	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated the following:

*"The quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant report and the form I's are calculated using the correct sample weights and percent moistures."*

The concentrations reported on the form I's were recalculated, verified, and addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes:

Blank ID	Analyte	Conc. (µg/kg)	Assoc. Samples
VBLKN8	Toluene	5	SB22A1-1B SB22A1-3A SB22A1-2C
VBLKN9	Toluene Methylene Chloride	0.4 6	SB22A1-3B SB22A1-2A
VBLK0X	Acetone Methylene Chloride	10 0.8	FB111898

Field ID	Analyte	New RL	Qualification
SB10A1-1A	Acetone	34	U
SB10A1-1B	Acetone 2-Butanone	32 5	U U
SB10A1-2A	Acetone	18	U
SB10A1-2B	Acetone	27	U
SB19A1-2A	Methylene chloride Acetone	5 15	U U
SB19A1-2B	Acetone	12	U
SB19A1-1A	Acetone 2-Butanone	23 4	U U
SB19A1-3A	Acetone	11	U
SB19A1-3B	Acetone	32	U
SB22A1-1B	Methylene chloride	7	U
SB22A1-2A	Methylene chloride Toluene	15 9	U U
SB22A1-2C	Toluene	8	U
SB22A1-3B	Methylene chloride	27	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes, with the exception of those listed in attached Table 1. Table 2 summarizes the associated data which was qualified based on LCS data.

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

See following table.

MS/MSD ID	Analyze	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB22A1-3A	Bromomethane	30/54	66-121	57	20
	Methylene Chloride	76/124	83-114	48	20
	1,2-Dichloroethene	82/94	84-114	14	20
	2-Butanone	94/118	55-146	23	20
	4-Methyl-2-pentanone	141/147	58-141	4	20
	2-Hexanone	141/153	47-150	8	20

Field ID	Analyte	Qualification

As noted in Functional Guidelines, if MS/MSD recoveries for organic analyses are outside evaluation criteria, additional QC parameters should be reviewed to determine if qualifications are necessary. No qualification of the data was done based on MS/MSD data alone.

## Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

See matrix spikes.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

???????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

TABLE 1

## LCS DATA OUTSIDE EVALUATION CRITERIA

LCS ID	Analyte	% Recovery	Evaluation Criteria	Comments
N1151.D	Methylene chloride	80	83-114	Qualify J/UJ
	Acetone	165	29-156	Previously qualified based on calibration % RSD
	Carbon disulfide	65	78-119	Qualify J/UJ
	Chloroform	75	83-114	Qualify J/UJ
	Carbon	70	77-127	Qualify J/UJ
	Bromodichloromethane	80	81-118	Qualify J/UJ
	Trichloroethene	75	82-114	Qualify J/UJ
	Dibromochloromethane	80	81-121	Qualify J/UJ
	Tetrachloroethene	70	78-118	Qualify J/UJ
N1169.D	Bromomethane	25	66-121	Previously qualified based on calibration % RSD
	Acetone	185	29-156	Previously qualified based on calibration % RSD
	Carbon disulfide	65	78-119	Qualify J/UJ
N1179.D	Bromomethane	30	66-121	Qualify J/UJ
	Chloroethane	120	78-119	Associated data ND, no qual
	Methylene chloride	235	83-114	Associated data ND, no qual
	Acetone	290	29-156	Associated data ND, no qual
	cis-1,3-Dichloropropene	115	74-111	Associated data ND, no qual
	Trichloroethene	115	82-114	Associated data ND, no qual
	2-Hexanone	155	47-150	Associated data ND, no qual
	Ethylbenzene	120	82-113	Associated data ND, no qual
	Styrene	120	77-118	Associated data ND, no qual
	Xylene	122	77-120	Associated data ND, no qual
O1103.D	Methylene chloride	130	78-119	Qualify detects estimated, J
	Acetone	115	83-114	Previously qualified based on calibration % RSD
	Carbon tetrachloride	70	77-127	Qualify J/UJ
	Dibromochloromethane	80	81-121	Qualify J/UJ
	1,1,2,2-Tetrachloroethane	120	76-118	Associated data ND, no qual

LCS – Laboratory Control Sample

J – Estimated

UJ – Estimated Nondetect

ND – Not Detected

TABLE 2

## DATA QUALIFICATIONS BASED ON LCS RECOVERIES

Field ID	LCS ID	Analyte	Qualifier
SB10A1-1A	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	J
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	J
SB10A1-1B	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	UJ
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	UJ
SB10A1-2A	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	UJ
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	UJ
SB10A1-2B	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	UJ
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	UJ
SB19A1-2A	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	UJ
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	UJ

TABLE 2 (continued)

## DATA QUALIFICATIONS BASED ON LCS RECOVERIES

Field ID	LCS ID	Analyte	Qualifier
SB19A1-2B	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	J
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	UJ
SB19A1-1A	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	J
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	J
SB19A1-3A	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	J
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	J
SB19A1-3B	N1151.D	Methylene chloride	UJ
		Carbon disulfide	UJ
		Chloroform	J
		Carbon tetrachloride	UJ
		Bromodichloromethane	UJ
		Trichloroethene	UJ
		Dibromochloromethane	UJ
		Tetrachloroethene	UJ
SB22A1-1B	N1169.D	Bromomethane	UJ
		Acetone	J
		Carbon disulfide	UJ
SB22A1-2C	N1169.D	Bromomethane	UJ
		Acetone	J
		Carbon disulfide	UJ
SB22A1-2A	N1179.D	Bromomethane	UJ
SB22A1-3A	N1169.D	Bromomethane	UJ
		Carbon disulfide	UJ
SB22A1-3B	N1179.D	Bromomethane	UJ

**TABLE 2 (continued)**

**DATA QUALIFICATIONS BASED ON LCS RECOVERIES**

<b>Field ID</b>	<b>LCS ID</b>	<b>Analyte</b>	<b>Qualifier</b>
FB 111898	O1103.D	Bromomethane	UJ
		Methylene chloride	J
		Carbon tetrachloride	UJ
		Dibromochloromethane	UJ

LCS – Laboratory Control Sample

J – Estimated

UJ – Estimated Nondetect

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2513B

Reviewer: John Keith

Date Reviewed: 1/19/1999

Sample Identification #	Sample Identification #
SB19A1-5C	SB19A1-5A
SB19A1-4A	SB19A1-4B
SB20A1-1A	SB20A1-1C
SB20A1-3A	SB20A1-3C
SB20A2-1A	SB20A2-1B
SB23A1-2A	SB23A1-1A
SB23A1-1B	SB24D1-1A
SB24D1-1B	SB24A1-1B
SB24A4-1B	SB24A4-1A
SB24A1-2B	SB24A1-2A

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated the quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant report and the form I's are calculated using the correct sample weights and percent moistures. The sample, SB24A1-2A, and the associated FMS and FMSD had varying sample weights of 4.77, 4.77, and 5.28 grams, respectively. These issues are addressed in the appropriate sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

. Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes:

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKN8	Toluene	0.5	SB19A1-5C SB19A1-4A SB19A1-4B SB20A1-1A SB20A1-1C
VBLKN9	MeCl Toluene	6 0.4	SB19A1-5A SB20A1-3A SB20A1-3C SB20A2-1A SB20A2-1B SB23A1-2A SB23A1-1A SB23A1-1B SB24D1-1A SB24D1-1B
VBLKNB	MeCl	3	SB24A4-1B SB24A4-1A SB24A1-2B SB24A1-1B SB24A1-2AFMS B24A1-2AFMSD
VBLKNC	MeCl	3	020PPB QCS SB24A1-2A

Field ID	Analyte	New RL	Qualification
SB19A1-4A	MeCl	13	U
SB19A1-4B	MeCl	10	U
SB20A1-1A	MeCl	10	U
	Toluene	5	U
SB20A1-1C	MeCl	9	U
SB20A1-3A	MeCl	9	U
SB20A2-1A	MeCl	10	U
SB23A1-1A	MeCl	9	U
	Toluene	4	U
	Acetone	16	U
SB23A1-1B	Toluene	5	U
SB24D1-1A	Acetone	64	U
SB24D1-1B	MeCl	13	U
	Acetone	24	U

Field ID	Analyte	New RL	Qualification
SB24A1-1B	MeCl	8	U
	Acetone	22	U
SB24A4-1B	MeCl	9	U
	Acetone	18	U
SB24A4-1A	MeCl	11	U
SB24A1-2B	MeCl	9	U
	Acetone	24	U
SB24A1-2A	Acetone	28	U
SB19A1-5A	MeCl	9	U
	Toluene	4	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1169	Bromomethane	25	66-121
	Acetone	185	29-156
	Carbon Disulfide	65	78-119
N1179.D	Bromomethane	30	66-121
	Chloroethane	120	78-119
	Methylene Chloride	235	83-114
	Acetone	290	29-156
	2-Butanone	175	55-146
	1,1,1-Trichloroethane	130	72-128
	cis-1,3-Dichloropropene	115	74-111
	Trichloroethene	115	82-114
	2-Hexanone	155	47-150
	Ethylbenzene	120	82-113
	Styrene	120	77-118
	Xylene (total)	122	77-120
N1219.D	Bromomethane	20	66-121
	Chloroethane	120	78-119
	Acetone	175	29-156
	2-Butanone	155	55-146
N1225.D	Bromomethane	70	66-121
	Chloroethane	125	78-119
	Acetone	210	29-156
	2-Butanone	175	55-146
	2-Hexanone	160	47-150

Field ID	Analyte	Qualification
SB19A1-5C	Bromomethane	UJ
	Carbon Disulfide	UJ
SB19A1-4A	Bromomethane	UJ
	Carbon Disulfide	UJ
SB19A1-4B	Bromomethane	UJ
	Carbon Disulfide	UJ
SB20A1-1A	Bromomethane	UJ
	Carbon Disulfide	UJ
SB20A1-1C	Bromomethane	UJ
	Carbon Disulfide	UJ
SB20A1-3A	Bromomethane	UJ
	Trichloroethene	
SB20A1-3C	Bromomethane	UJ
SB20A2-A1	Bromomethane	UJ
SB20A2-A1	Bromomethane	UJ
SB23A1-2A	Bromomethane	UJ
SB23A1-1A	Bromomethane	UJ
	1,1,1- Trichloroethane Trichloroethene	J
SB23A1-1B	Bromomethane	UJ
	Trichloroethene	
	Ethylbenzene	
	Xylene (total)	
SB24D1-1A	Bromomethane	UJ
	2-Butanone	
SB24D1-1B	Bromomethane	UJ
SB24A1-1B	Bromomethane	UJ
	2-Butanone	
SB24A4-1B	Bromomethane	UJ
	2-Butanone	
SB24A4-1A	Bromomethane	UJ
	Carbon Disulfide	
SB24A1-2B	Bromomethane	UJ
	2-Butanone	
SB24A1-2A	Bromomethane	UJ
SB19A1-5A	Bromomethane	UJ
	Trichloroethene	

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

See following table.

MS/MSD ID	Analyze	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB24A1-2A	Bromomethane	23/20	66-121	14	20
	Vinyl Chloride	130/94	63-129	32	20
	Bromodichloromethane	73/89	81-118	20	20
	cis-1,3-Dichloropropene	68/85	74-111	21	20
	Trichloroethene	10/4	82-114	22	20
	Dibromochloromethane	67/87	81-121	87	20
	trans-1,3-Dichloropropene	55/80	80-128	37	20
	Bromoform	57/83	68-134	37	20
	2-Hexanone	82/115	47-150	34	20
	Tetrachloroethene	80/72	78-118	10	20
	1,1,2,2-Tetrachloroethane	63/87	76-118	32	20
	Chlorobenzene	67/74	77-118	10	20
	Ethylbenzene	80/78	82-113	2	20
	Styrene	57/61	77-118	7	20
	Xylene (total)	78/75	77-120	4	20

## Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

## Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2513C

Reviewer: John Keith

Date Reviewed: 1/20/1999

Sample Identification #	Sample Identification #
SB24A1-1A	SB50A1-1A
SB24A3-1A	SB24A4-2A
SB24A2-2A	SB24A4-4A
SB24A4-4B	SB24A4-4C
SB24A4-2B	FB 112498
TB112598	SB24A2-1A
SB24A2-1B	SB23A1-3A
SB23A1-3B	SB24C1-1A
SB24C1-1B	SB24B1-2A
SB24B1-2B	SB19A1-6A

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated some of the quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant report and the form I's are calculated using the correct sample weights and percent moistures.

The sample, SB19A1-6A, and the associated MS and MSD had varying sample weights of 5.38, 5.24 and 5.44 grams, respectively.

Sample SB19A1-6A had surrogates out of criteria. The MS and MSD performed on this sample also had similar results thus proving matrix interference. The MSD also had suppression of internal standard areas.

Sample SB24A4-2A was originally analyzed on 11/25/98 as a low level soil with a target compound concentration over the calibration curve. The sample was re-analyzed straight on 11/30/98 with all concentrations under the calibration curve range. Both analyses were reported to show the non-homogeneity of the sample.

These issues are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes:

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKMY	Acetone	4	TB 112598 FB 112498
VBLKNB	MeCl	3	SB24A1-1A SB50A1-1A SB24A3-1A
VBLKNC	MeCl	3	SB24A4-2A SB24A2-2A SB24A4-4A SB24A4-4B
VBLKND	MeCl Acetone	2 9	SB24A-2ARE
VBLKNE	MeCl	2	SB24A4-2B SB24A2-1A SB24A2-1B SB23A1-3A SB23A1-3B
VBLKNG	MeCl	1	SB24C1-1A SB24C1-1B SB24B1-2B SB19A1-6A
VBLKOJ	Acetone 2-Butanone	710 930	SB24A4-4C

Field ID	Analyte	New RL	Qualification
FB 112498	Acetone	72	U
TB 112598	Acetone	10	U
	MeCl	10	
SB24A1-1A	MeCl	13	U
SB50A1-1A	MeCl	9	U
SB24A3-1A	MeCl	11	U
SB24A4-2ARE	Acetone	16	U
	MeCl	10	U
SB24A4-2B	Acetone	39	U
	MeCl	10	U
SB24A2-1A	Acetone	13	U
	MeCl	16	U
SB24A2-1B	Acetone	19	U
SB23A1-3A	Acetone	10	U
	MeCl	10	U
SB23A1-3B	Acetone	10	U
	MeCl	10	U
SB24C1-1A	Acetone	11	U
	MeCl	10	U
SB24C1-1B	Acetone	30	U
SB24B1-2A	Acetone	12	U
	MeCl	9	U
SB24A4-4C	Acetone	4500	U
	2-Butanone	4500	U
SB24B1-2B	Acetone	35	U
	MeCl	11	U
SB19A1-6A	Acetone	14	U
	MeCl	10	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1206.D	Bromomethane	60	66-121
	Vinyl Chloride	130	63-129
	Chloroethane	135	78-119
	Methylene Chloride	120	83-114
	Acetone	235	29-156
	1,2-Dichloroethene (total)	120	84-114
	2-Butanone	200	55-146

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
	cis-1,3-Dichloropropene	115	82-114
	4-Methyl-2-Pentanone	180	47-150
	Ethylbenzene	120	82-113
	Styrene	120	77-118
N1225.D	Bromomethane	40	66-121
	Chloroethane	125	78-119
	Acetone	210	29-156
	2-Butanone	175	55-146
	2-Hexanone	160	47-150
N1250.D	Bromomethane	125	66-121
	Chloroethane	140	78-119
	Acetone	290	29-156
	2-Butanone	210	55-146
	Bromodichloromethane	45	81-118
	2-Hexanone	180	47-150
N1268.S	Bromomethane	125	66-121
	Chloroethane	135	78-119
	Methylene Chloride	115	83-114
	Acetone	210	29-156
	2-Butanone	190	55-146
	Bromodichloromethane	40	81-118
	2-Hexanone	155	47-150

Field ID	Analyte	Qualification
SB24A1-1A	Bromomethane	UJ
SB50A1-1A	Bromomethane	UJ
SB24A3-1A	Bromomethane	UJ
SB24A4-2A	Bromomethane	UJ
SB24A2-2A	Bromomethane	UJ
SB24A4-4A	Bromomethane	UJ
SB24A4-4B	Bromomethane	UJ
SB24A4-2B	2-Butanone	UJ
	Bromodichloromethane	
SB24A2-1A	Bromodichloromethane	UJ
SB24A2-1B	2-Butanone	UJ
	Bromodichloromethane	
SB23A1-3A	Bromodichloromethane	UJ
SB23A1-3B	Bromodichloromethane	UJ
SB24C1-1A	Bromodichloromethane	UJ
SB24C1-1B	2-Butanone	UJ
	Bromodichloromethane	
SB24B1-2A	2-Butanone	UJ
	Bromodichloromethane	
SB24A4-4C	Carbon Tetrachloride	UJ
	Trichloroethene	UJ
	Dibromochloromethane	UJ
SB24B1-2B	2-Butanone	UJ
	Bromodichloromethane	

Field ID	Analyte	Qualification
SB19A1-6A	2-Butanone Bromodichloromethane	UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
SB24A4-2A	Bromofluorobenzene	62	74-121	Qualify all J/UJ
	Toluene	132	81-117	
SB19A1-6A	Bromofluorobenzene	128	74-121	Qualify all J/UJ
	1,2-Dichloroethane	138	70-121	
	Toluene	128	81-117	

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB19A1-6A	Trichloroethene	208/140	62-137	39	24
	Benzene	152/146	66-142	4	21
	Chlorobenzene	142/138	60-133	3	21

OR

MS/MSD ID	Analyte	MS/MSD/RPD Rec	Criteria

Field ID	Analyte	Qualification

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

???

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

NA

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2513D

Reviewer: John Keith

Date Reviewed: 1/19/1999

Sample Identification #	Sample Identification #
SB10A1-3A	SB10A1-3B
SB19A1-6B	SB20A2-2A
SB20A2-2B	SB50A1-3A
FB 120298	SB27E1-4A
SB27E1-4C	SB27E10-1A
SB27E10-1C	SB27E1-2A
SB27E1-2C	SB27E1-3A
SB27E1-3C	SB27E1-1A
SB27E1-1B	SB27E11-1A
SB27E11-1B	SB27E112A-
SB27E112C-	SB27E113A-

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated sample SB10A1-3B was analyzed twice as a low level soil with surrogates out of criteria. Both analyses were reported since matrix interference was proven.

Samples SB27E10-1C, SB27E112A- and SB27E1-3C were analyzed as medium level soils due to high chromatography and/or high target compound concentrations.

Sample SB27E112A- had the target compound, acetone, over the calibration curve despite a medium level soil analysis. This compound was flagged with an "E".

These issues are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKL2	Acetone	13	FB 120298
VBLKNH	MeCl	1	SB10A1-3A SB10A1-3B SB20A2-2B SB50A1-3A SB10A1-3BRE SB19A1-6B
VBLKNI	MeCl	1	SB20A2-2A
VBLKN2	MeCl	1	SB27E1-4A SB27E1-2A SB27E1-2C SB27E11-1A SB27E11-1B SB27E113A-
VBLKN3	MeCl Acetone 2-Butanone	2 8 2	SB27E112C- SB27E1-3A SB27E10-1A SB27E1-4C
VBLKOK	Acetone 2-Butanone	1000 950	SB27E10-1C SB27E112A- SB27E1-3C

Field ID	Analyte	New RL	Qualification
FB 120298	Acetone	17	U
SB10A1-3A	MeCl Acetone	11 13	U U
SB10A1-3B	MeCl Acetone	10 11	U U
SB10A1-3BRE	MeCl Acetone	10 10	U U
SB19A1-6B	MeCl Acetone	9 9	U U
SB20A2-2B	MeCl	12	U
SB50A1-3A	MeCl Acetone	12 17	U U

Field ID	Analyte	New RL	Qualification
SB20A2-2A	MeCl	9	U
	Acetone	27	U
SB27E1-4A	MeCl	10	U
	Acetone	26	U
SB27E1-2A	MeCl	10	U
	Acetone	55	U
SB27E1-2C	MeCl	10	U
	Acetone	23	U
SB27E11-1C	MeCl	10	U
	Acetone	10	U
SB27E11-1A	MeCl	10	U
	Acetone	13	U
SB27E113A-	MeCl	12	U
	Acetone	14	U
SB27E112C-	MeCl	10	U
	Acetone	14	U
SB27E1-4C	MeCl	10	U
	Acetone	49	U
SB27E10-1A	MeCl	11	U
	Acetone	38	U
	2-Butanone	15	U
SB27E1-3A	MeCl	10	U
	Acetone	34	U
SB27E10-1C	MeCl	1200	U
	Acetone	1200	U
	2-Butanone	1300	U
SB27E1-3C	Acetone	1100	U
	2-Butanone	1200	U
SB27E112A-	MeCl	1000	U
	2-Butanone	1000	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1283.D	Chloroethane	120	78-119
	Acetone	200	29-156
	2-Butanone	175	55-146
	Bromodichloromethane	35	81-118
N1303.D	Acetone	190	29-156
	2-Butanone	170	55-146
	Carbon Tetrachloride	75	77-127
	Bromodichloromethane	35	81-118

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1313.D	Chloroethane	130	78-119
	Acetone	230	29-156
	2-Butanone	200	55-146
	Bromodichloromethane	40	81-118
	2-Hexanone	160	47-150
O1266.D	Chloroethane	1358	78-119
	Acetone	195	29-156
	2-Butanone	170	55-146
	2-Hexanone	165	47-150

Field ID	Analyte	Qualification
SB10A1-3A	2-Butanone	
	Bromodichloromethane	UJ
SB10A1-3B	2-Butanone	
	Bromodichloromethane	UJ
SB10A1-3BRE	Bromodichloromethane	UJ
SB19A1-6B	2-Butanone	
	Dibromochloromethane	UJ
SB20A2-2B	2-Butanone	
	Carbon Tetrachloride	UJ
	Bromodichloromethane	UJ
SB50A1-3A	2-Butanone	
	Bromodichloromethane	UJ
SB20A2-2A	2-Butanone	
	Bromodichloromethane	UJ
SB27E1-4A	2-Butanone	
	Carbon Tetrachloride	UJ
	Bromodichloromethane	UJ
SB27E1-2A	2-Butanone	
	Carbon Tetrachloride	UJ
	Bromodichloromethane	UJ
SB27E1-2C	Carbon Tetrachloride	UJ
	Bromodichloromethane	UJ
SB27E11-1C	Carbon Tetrachloride	UJ
	Bromodichloromethane	UJ
SB27E11-1A	2-Butanone	
	Carbon Tetrachloride	UJ
	Bromodichloromethane	UJ
SB27E113A-	2-Butanone	
	Carbon Tetrachloride	UJ
	Bromodichloromethane	UJ
SB27E112C-	Bromodichloromethane	UJ
SB27E1-4C	Bromodichloromethane	UJ
SB27E10-1A	Bromodichloromethane	UJ
SB27E1-3A	Bromodichloromethane	UJ

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action
SB				

## 7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB27E113A-	Chloromethane	244/254	32-156	4	20
	Bromomethane	240/246	66-121	2	20
	Vinyl Chloride	228/238	63-129	4	20
	Chloroethane	240/238	78-119	1	20
	Methylene Chloride	260/277	83-114	6	20
	Acetone	236/269	29-156	13	20
	Carbon Disulfide	252/262	78-119	4	20
	Vinyl Acetate	400/462	16-144	14	20
	1,1-Dichloroethene	272/277	78-122	2	20
	1,1-Dichloroethane	288/296	80-119	3	20
	1,2-Dichloroethene (total)	280/288	84-114	3	20
	Chloroform	276/281	83-114	2	20
	1,2-Dichloroethane	280/288	80-123	3	20
	2-Butanone	356/408	55-146	14	20
	1,1,1-Trichloroethane	244/265	72-128	8	20
	Carbon Tetrachloride	256/277	77-127	8	20
	Bromodichloromethane	120/131	81-118	9	20
	1,2-Dichloropropane	284/304	77-125	7	20
	cis-1,3-Dichloropropene	264/285	74-111	8	20
	Trichloroethene	284/296	82-114	4	20
	Dibromochloromethane	292/308	81-121	5	20
	1,1,2-Trichloroethane	308/323	74-126	5	20
	Benzene	292/292	78-120	0	20
	trans-1,3-Dichloropropene	272/281	80-128	3	20
	Bromoform	316/335	68-134	6	20
	4-Methyl-2-Pentanone	380/385	58-141	1	20
	2-Hexanone	376/385	47-150	2	20
	Tetrachloroethene	240/246	78-118	2	20

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
	Toluene	272/285	70-140	5	20
	1,1,2,2-Tetrachloroethane	312/335	76-118	7	20
	Chlorobenzene	280/288	77-118	3	20
	Ethylbenzene	268/281	82-112	5	20
	Styrene	280/288	77-118	3	20
	Xylene (total)	280/282	77-120	1	20

OR

MS/MSD ID	Analyte	MS/MSD/RPD Rec	Criteria

Field ID	Analyte	Qualification

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

?????.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): E2513

Reviewer: Robert Mallisee / John Keith

Date Reviewed: 1/14/99

Sample Identification #	Sample Identification #
SB27E113B-	SB51C1-1A
FB120398	SB17A1-1C
SB17A3-6A	FB 120498
SB17A3-6B	SB17A3-2A
SBSB17A3-1B	SB17A3-2B
SB17C1-1A	SB17A3-7A
SB17A3-5A	SB17A3-7B
SB17A3-1A	SB17A3-8A
SB17C1-1B	SB17A3-8B
SB17A1-1A	SB17A3-5B

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

????

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated sample SB17A3-5B was analyzed twice due to results exhibiting suppression of internal standard areas. Both analyses were reported since matrix interference was proven.

Samples SB17C1-1A and SB51C1-1A were analyzed with results having trichloroethene at 255 ppb and 303 ppb, respectively. The calibration curve range is 200 ppb.

These issues are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes:

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKL4	Acetone	12	FB120398 FB120498
VBLKOK	Acetone 2-Butanone	1000 950	SB17A3-1B
VBLKN3	Methylene Chloride Acetone 2-butanone	2 8 2	SB27E113B-
VBLKON	Acetone	840	SB17A3-7B SB17A3-8B
VBLKN4	Methylene Chloride Acetone	2 11	SB17C1-1A SB17A1-1A SB17A3-5A SB17A3-5B SB51C1-1A
VBLKN5	Methylene Chloride	1	SB17A3-1A SB17C1-1B SB17A1-1C SB17A3-2A SB17A3-2B SB17A3-7A
VBLKN6	Methylene Chloride Acetone 2-Butanone	2 9 2	SB17A3-8A SB17A3-8ARE SB17A3-5BRE

Qualifications based on blank contamination:

Field ID	Analyte	New RL	Qualification	Comments
SB27E113B-	Methylene Chloride	10	U	MB
SB27E113B-	Acetone	10	U	MB
SB27E113B-	2-Butanone	5	U	MB
SB17A3-6A	2-Butanone	1000	U	MB
SB17A3-6A	Acetone	3100	U	MB
SB17A3-6B	Acetone	2100	U	MB
SB17A3-6B	2-Butanone	1000	U	MB
SB17A3-1B	Acetone	2100	U	MB

Field ID	Analyte	New RL	Qualification	Comments
SB17A3-1B	2-Butanone	920	U	MB
SB17C1-1A	Methylene Chloride	10	U	MB
SB17C1-1A	Acetone	28	U	MB
SB17A3-5A	Acetone	19	U	MB
SB17A3-1A	Methylene Chloride	12	U	MB
SB17C1-1B	Methylene Chloride	11	U	MB
SB17A1-1A	Methylene Chloride	9	U	MB
SB17A1-1A	Acetone	20	U	MB
SB51C1-1A	Methylene Chloride	10	U	MB
SB51C1-1A	Acetone	30	U	MB
SB17A1-1C	Methylene Chloride	10	U	MB
SB17A3-2A	Methylene Chloride	10	U	MB
SB17A3-2B	Methylene Chloride	9	U	MB
SB17A3-7A	Methylene Chloride	10	U	MB
SB17A3-7B	Acetone	1000	U	MB
SB17A3-8ARE	Methylene Chloride	10	U	MB
SB17A3-8ARE	Acetone	32	U	MB
SB17A3-8ARE	2-Butanone	17	U	MB
SB17A3-8B	Acetone	600	U	MB
SB17A3-5B	Methylene Chloride	10	U	MB
SB17A3-5B	Acetone	32	U	MB
SB17A3-5BRE	Acetone	46	U	MB

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1266	Chloroethane	135	78/119
N1266	Bromoform	65	68/134
N1266	2-Hexanone	165	29/156
N1313	Chloroethane	130	78/119
N1313	Acetone	230	29/156
N1313	2-Butanone	200	55/146
N1313	Bromodichloromethane	40	81/118
N1313	2-Hexanone	160	47/150
N1351	Vinyl Chloride	130	63/129
N1351	Chloroethane	140	78/119
N1351	Acetone	205	29/156
N1351	2-Butanone	210	55/146
N1351	1,2-Dichloroethene (total)	115	84/114

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1351	2-Butanone	210	55/146
N1351	Bromodichloromethane	40	81/118
N1351	2-Hexanone	160	47/150
N1351	Tetrachloroethene	75	78/118
N1335	Chloroethane	120	78/119
N1335	Acetone	215	29/156
N1335	2-Butanone	200	55/146
N1335	Bromodichloromethane	40	81/118
N1335	2-Hexanone	160	47/150
N1332	Acetone	165	29/156
N1366	Chloroethane	135	78/119
N1366	Acetone	200	29/156
N1366	2-Butanone	215	55/146
N1366	Carbon Tetrachloride	75	77/127
N1366	Bromodichloromethane	40	81/118
N1366	Dibromochloromethane	80	81/121
N1366	2-Hexanone	160	47/150
N1366	Tetrachloroethene	70	78/118

Qualifications based on LCS data:

Field ID	Analyte	Qualification
SB17C1-1A	Bromodichloromethane	UJ
SB17C1-1A	2-Butanone	J
SB17A3-5A	Bromodichloromethane	UJ
SB17A1-1A	2-Butanone	J
SB17A1-1A	Bromodichloromethane	UJ
SB51C1-1A	2-Butanone	J
SB51C1-1A	Bromodichloromethane	UJ
SB17A3-5B	2-Butanone	J
SB17A3-5B	Tetrachloroethene	UJ
SB17A3-1A	Tetrachloroethene	J
SB17A3-1A	Bromodichloromethane	UJ
SB17A3-1A	2-Butanone	J
SB17C1-1B	2-Butanone	J
SB17C1-1B	Tetrachloroethene	J
SB17C1-1B	Bromodichloromethane	UJ
SB17C1-1B	1,2-Dichloroethene	J
SB17A1-1C	Tetrachloroethene	J
SB17A1-1C	Bromodichloromethane	UJ
SB17A1-1C	1,2-Dichloroethene	J
SB17A3-2A	2-Butanone	J
SB17A3-2A	1,2-Dichloroethene	J
SB17A3-2A	Bromodichloromethane	UJ
SB17A3-2A	Tetrachloroethene	J
SB17A3-2B	2-Butanone	J

Field ID	Analyte	Qualification
SB17A3-2B	Tetrachloroethene	J
SB17A3-2B	Bromodichloromethane	UJ
SB17A3-7A	Bromodichloromethane	UJ
SB17A3-7A	2-Butanone	J
SB17A3-7A	Tetrachloroethene	J
SB17A3-8A	Carbon Tetrachloride	UJ
SB17A3-8A	Bromodichloromethane	UJ
SB17A3-8A	Dibromochloromethane	UJ
SB17A3-8A	Tetrachloroethene	UJ
SB17A3-8BRE	Carbon Tetrachloride	UJ
SB17A3-8BRE	Bromodichloromethane	UJ
SB17A3-8BRE	Dibromochloromethane	UJ
SB17A3-8BRE	Tetrachloroethene	UJ
SB17A3-5BRE	Carbon Tetrachloride	UJ
SB17A3-5BRE	Bromodichloromethane	UJ
SB17A3-5BRE	Dibromochloromethane	UJ
SB17A3-5BRE	Tetrachloroethene	J
SB17A3-6A	Bromoform	UJ
SB17A3-6B	Bromoform	UJ
SB17A3-1B	Bromoform	UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes, with the exception of the following:

Field ID	Surrogate	Recovery	Criteria	Action
SB17A3-5B	Toluene	119	81/117	Qual detects estimated, J
SB17A3-5B	Bromofluorobenzene	130	74/121	Qual detects estimated, J
SB17A3-5B	1,2-Dichloroethane	132	70/121	Qual detects estimated, J
SB17A3-5BRE	Toluene	143	81/117	Qual detects estimated, J

All data reported for SB17A3-5B were reported nondetect except 2-butanone and toluene. 2-butanone was previously qualified based on LCS data. Toluene data for SB17A3-5B were qualified estimated, **J**, based on surrogate data. 1,1-dichloroethene, 1,2-dichloroethane, 1,2-dichloroethane, chloroform, 1,1,1-trichloroethane, trichloroethene, benzene and toluene data for sample SB17A3-5BRE were qualified estimated, **J**, based on surrogate data.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes, sample SB27E113A- was analyzed for the MS/MSD

*Were MS/MSD recoveries within evaluation criteria?*

No, all MS recoveries (except bromodichloromethane) and all MSD recoveries were outside evaluation criteria. All RPDs were within evaluation criteria. As suggested in Functional Guidelines, no qualification of the data based on MS/MSD data alone were made.

MS/MSD ID	Analyte	MS/MSD/RPD Rec	Criteria

Field ID	Analyte	Qualification

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

The following samples were analyzed as medium level soils due to high target concentrations present in the samples.

Sample I.D.	Sample I.D.
SB17A3-6A	SB17A3-5A
SB17A3-6B	SB17A3-7B
SB17A3-1B	SB17A3-8B

## Additional Qualifications

*Were additional qualifications applied?*

Yes, methylene chloride and acetone data were qualified as nondetect, **U**, based on professional judgement as lab contamination as summarized below:

Field ID	Analyte	New RL	Qualification	Comments
SB17A3-6B	Methylene Chloride	1000	U	PJ
SB17A3-6A	Methylene Chloride	870	U	PJ
SB17A3-1A	Acetone	14	U	PJ
SB17C1-1B	Acetone	35	U	PJ
SB17A1-1C	Acetone	21	U	PJ
SB17A3-2A	Acetone	22	U	PJ
SB17A3-2B	Acetone	9	U	PJ
SB17A3-7A	Acetone	11	U	PJ

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 2513F

Reviewer: Robert Mallisee / John Keith

Date Reviewed: 1/17/99

Parameter(s): VOCs

Sample Identification #	Sample Identification #
SB8LI-7A	SB14A2-1C
SB8LI-7B	SB14A2-2A
SB8LI-7C	SB14A2-2C
SB17A4-1A	SB09A1-1A
SB17A4-1C	SB09A1-1B
SB17A3-4A	SB09A1-2A
SB17A3-4B	SB09A1-2B
SB17A3-3A	SB09A1-3A
SB17A3-3B	SB09A1-3B
SB14A2-1A	SB09A14A

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

No.

Spike summary sheets are missing for Ids N1503 (12/17/98) and O1339 (12/10/98).  
For ID O1327 only analysis data sheet included.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

Five samples were analyzed twice having surrogates out of criteria. **Sample SB09A1-2B had compounds concentrations over the calibration curve, and there was no sample remaining for medium level analysis due to its use for FMS/MSD analysis.** These issues are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKOM	Acetone 2-Butanone	300 260	SB8LI-7A SB8LI-7B SB8LI-7C SB8LI-7ARE SB8LI-7BRE SB8LI-7CRE
VBLKON	Acetone	840	SB09A1-3A
VBLKN6	Methylene Chloride Acetone 2-Butanone	2 9 2	SB17A4-1C SB17A3-4A SB17A3-3A
VBLKN7	Methylene Chloride Acetone	2 5	SB17A4-1A SB17A3-4B SB14A2-1A AB14A2-1C SB14A2-2A SB14A2-2C SB09A1-1A SB09A1-2B
VBLKNV	Acetone Methylene chloride	14 2	SB09A1-2BFMS SB09A1-2BFMSD

Field ID	Analyte	New RL	Qualification
SB8LI-7A	Acetone	2200	U
SB8LI-7A	2-Butanone	1600	U
SB8LI-7ARE	Acetone	810	U
SB8LI-7ARE	2-Butanone	1200	U
SB8LI-7B	Acetone	1500	U
SB8LI-7B	2-Butanone	960	U
SB8LI-7BRE	Acetone	810	U
SB8LI-7BRE	2-Butanone	1000	U
SB8LI-7C	Acetone	1500	U
SB8LI-7C	2-Butanone	860	U
SB8LI-7CRE	Acetone	860	U
SB8LI-7CRE	2-Butanone	860	U
SB17A4-1A	Methylene Chloride	10	U
SB17A4-1A	Acetone	16	U

Field ID	Analyte	New RL	Qualification
SB17A3-4A	Acetone	20	U
SB17A3-4A	2-Butanone	5	U
SB17A3-4B	Methylene Chloride	10	U
SB17A3-4B	Acetone	22	U
SB17A3-3A	Methylene Chloride	10	U
SB17A3-3A	Acetone	47	U
SB17A3-3A	2-Butanone	15	U
SB14A2-1A	Methylene Chloride	10	U
SB14A2-1A	Acetone	10	U
SB14A2-1C	Methylene Chloride	10	U
SB14A2-1C	Acetone	10	U
SB14A2-2A	Methylene Chloride	10	U
SB14A2-2A	Acetone	18	U
SB14A2-2C	Acetone	15	U
SB09A1-1A	Methylene Chloride	10	U
SB09A1-1A	Acetone	59	U
SB09A1-2B	Methylene Chloride	9	U
SB09A1-2B	Acetone	14	U
SB09A1-3A	Acetone	980	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes, with the exception of the following:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1366	Chloroethane	135	78/119
N1366	Acetone	200	29/156
N1366	2-Butanone	215	55/146
N1366	Carbon Tetrachloride	75	77/127
N1366	Bromodichloromethane	40	81/118
N1366	Dibromochloromethane	80	81/121
N1366	2-Hexanone	160	47/150
N1366	Tetrachloroethene	70	78/118
N1382	Chloroethane	135	78/119
N1382	Methylene Chloride	115	83/114
N1382	Acetone	230	29/156
N1382	2-Butanone	210	55/146
N1382	Carbon Tetrachloride	75	77/127
N1382	Bromodichloromethane	40	81/118
N1382	2-Hexanone	160	47/150
N1382	Tetrachloroethene	75	78/118
N1503	Chloroethane	130	78/119
N1503	Acetone	200	29/156
N1503	2-Butanone	150	55/146
N1503	2-Hexanone	170	47/150

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1605	Bromomethane	125	66/121
N1605	Chloroethane	140	78/119
N1605	Acetone	265	29/156
N1605	2-Butanone	210	55/146
N1605	2-Hexanone	165	47/150
O1339	Acetone	165	29/156
O1327	Acetone	170	29/156

Data was qualified as estimated, **J** (detects) or estimated nondetect, **UJ** (nondetect) based on LCS data as summarized in the following table:

Field ID	Analyte	Qualification
SB14A4-1C	Carbon Tetrachloride	UJ
SB14A4-1C	Bromodichloromethane	UJ
SB14A4-1C	Dibromochloromethane	UJ
SB17A3-4A	Carbon Tetrachloride	UJ
SB17A3-4A	Bromodichloromethane	UJ
SB17A3-4A	Dibromochloromethane	UJ
SB17A3-4A	Tetrachloroethene	UJ
SB17A3-3A	Bromodichloromethane	UJ
SB17A3-3A	Dibromochloromethane	UJ
SB17A3-3A	Carbon Tetrachloride	UJ
SB17A4-1A	Carbon Tetrachloride	UJ
SB17A4-1A	Bromodichloromethane	UJ
SB17A4-1A	Tetrachloroethene	J
SB17A3-4B	Carbon Tetrachloride	UJ
SB17A3-4B	Bromodichloromethane	UJ
SB14A2-1A	Bromodichloromethane	UJ
SB14A2-1A	Tetrachloroethene	UJ
SB14A2-1A	Carbon Tetrachloride	UJ
SB14A2-1C	Bromodichloromethane	UJ
SB14A2-1C	Tetrachloroethene	UJ
SB14A2-1C	Carbon Tetrachloride	UJ
SB14A2-2A	Bromodichloromethane	UJ
SB14A2-2A	Tetrachloroethene	J
SB14A2-2A	Carbon Tetrachloride	UJ
SB14A2-2C	Carbon Tetrachloride	UJ
SB14A2-2C	Bromodichloromethane	UJ
SB14A2-2C	Tetrachloroethene	J
SB09A1-1A	Carbon Tetrachloride	UJ
SB09A1-1A	Bromodichloromethane	UJ
SB09A1-1A	Tetrachloroethene	J
SB09A1-2B	Carbon Tetrachloride	UJ
SB09A1-2B	Bromodichloromethane	UJ

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
SB09A1-2B	Toluene-d8	125	81/117	qualify detects estimated, J
SB17A3-3B	Toluene-d8	60	81/117	qualify all estimated, J
	Bromofluorobenzene	68	74/121	estimated nondetect, UJ
	1,2-dichloroethane	60	70/121	
SB09A1-4A	Bromofluorobenzene	125	74/117	qualify detects estimated, J
SB17A3-3BRE	Toluene-d8	56	81/117	qualify all estimated, J
	Bromofluorobenzene	66	74/121	estimated nondetect, UJ
	1,2-dichloroethane	60	70/121	
SB09A1-4ARE	Bromofluorobenzene	130	74/121	qualify detects estimated, J
SB08LI-7A	Bromofluorobenzene	149	74/121	qualify detects estimated, J
SB08LI-7B	Bromofluorobenzene	147	74/121	qualify detects estimated, J
SB08LI-7C	Bromofluorobenzene	385	74/121	qualify detects estimated, J
SB08LI-7ARE	Bromofluorobenzene	140	74/121	qualify detects estimated, J
SB08LI-7BRE	Bromofluorobenzene	149	74/121	qualify detects estimated, J
SB08LI-7CRE	Bromofluorobenzene	373	74/121	qualify detects estimated, J

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes, sample SB09A1-2B

*Were MS/MSD recoveries within evaluation criteria?*

No.

Analyte	MS/MSD Recovery	Recovery Limits	RPD	RPD Limits	Comments
Vinyl Chloride	138/110	63-129	22	20	
Acetone	252/276	29-156	9	20	
Vinyl Acetate	181/178	16-144	2	20	
1,1-Dichloroethane	5/2	80-119	86	20	
2-Butanone	214/190	55-146	12	20	
Carbon Tetrachloride	76/93	77-127	20	20	
4-Methyl-2-Pentanone	193/190	58-141	2	20	
2-Hexanone	190/198	47-150	4	20	
Dibromochloromethane	98/124	81-121	23	20	
1,1,1-Trichloroethane	0/0	72-128	0	20	

Field ID	Analyte	Qualification

As suggested in Functional Guidelines, no qualification of the data based on MS/MSD data alone were made.

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

????????????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

The following samples were analyzed as medium level soils due to high target concentrations present in the samples.

Sample ID	Sample ID	Sample ID
SB09A1-2A	SB17A3-3B	SB09A1-4A
SB17A3-3BRE	SB09A1-1B	SB09A1-3B
SB09A1-4ARE	SB8LI-7B	SB8LI-7A
SB8LI-7C	SB8LI-7ARE	SB8LI-7BRE
SB8LI-7CRE	SB09A1-3A	

### Additional Qualifications

*Were additional qualifications applied?*

Yes, methylene chloride and acetone data were qualified as nondetect, U, based on professional judgement as lab contamination as summarized below:

Field ID	Analyte	New RL	Qualification
SB17A3-3B	Methylene Chloride	4800	U-pj
SB17A3-3B	Acetone	4800	U-pj
SB17A3-3BRE	Methylene Chloride	4800	U-pj
SB09A1-1B	Methylene Chloride	1800	U-pj
SB09A1-2A	Methylene Chloride	1000	U-pj
SB09A1-2A	Acetone	1000	U-pj
SB09A1-3B	Methylene Chloride	5100	U-pj
SB09A1-3B	Acetone	5100	U-pj
SB09A1-4A	Methylene Chloride	5600	U-pj
SB09A1-4ARE	Methylene Chloride	5600	U-pj

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2513G

Reviewer: John Keith

Date Reviewed: 1/19/1999

Sample Identification #	Sample Identification #
SB09A1-4B	SB09B4-1A
SB09B4-1B	SB09B6-1A
SB09B6-1C	SB09B8-1A
SB09B8-1B	SB09B10-1A
SB09B10-1B	SB09A2-1A
SB09A2-1C	SB09C1-1A
SB09C1-1B	SB09C2-1A
SB09C2-1B	SB50A1-4A
FB 120798	SB51B7-1A
FB 120898	SB18A2-1A

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

No, the MS/MSD summary was not included in the report.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated the following samples were analyzed as medium level soils due to high target compound concentrations and/or high chromatography:

SB09B4-1A straight  
SB09A2-1C 1:5  
SB09C1-1A 1:5  
SB09C1-1B 1:5  
SB50A1-4A 1:2  
SB09B8-1A 1:5  
SB09B8-1B 1:2  
SB09C2-1A straight  
SB09A2-1A 1:2

SB09A1-4B 1:5  
 SB09B4-1B 1:5  
 SB09A2-1C 1:5  
 SB09C1-1A 1:5  
 SB09C1-1B 1:5  
 SB09C2-1A 1:5  
 SB09C2-1B 1:5

These issues are addressed in the appropriate sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKN7	Acetone	2	SB09B6-1C
	MeCl	5	SB09B10-1B
VBLKN8	MeCl	1	SB09B6-1A SB09B10-1A SB51B7-1A SB28A2-1A

Field ID	Analyte	New RL	Qualification
SB09A1-4B	MeCl	4400	U
SB09B6-1A	MeCl	10	U
	Acetone	25	U
SB09B6-1C	MeCl	10	U
	Acetone	15	U
SB09B8-1A	MeCl	7400	U
	Acetone	8900	U
SB09B10-1A	Acetone	12	U
SB09B10-1B	MeCl	10	U
	Acetone	22	U
SB09A2-1A	Acetone	4700	J
SB09C1-1B	MeCl	5800	U

Field ID	Analyte	New RL	Qualification
SB09C2-1A	MeCl	880	U
	Acetone	1500	U
FB 120798	Acetone	18	U
SB51B7-1A	Acetone	10	U
SB28A2-1A	Acetone	19	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
O1369.D	Chloroethane	125	78-119
	Acetone	165	29-156
	Carbon Tetrachloride	70	77-127
	Bromodichloromethane	50	81-118
	Trichloroethene	80	82-114
	Dibromochloromethane	75	81-121
K1943.D	Acetone	195	29-156
	4-Methyl-2-Pentanone	170	47-150
	Chlorobenzene	120	77-118
K1965.D	Chloroethane	130	78-119
	Acetone	195	29-156
	2-Hexanone	190	47-150
N1382.D	Chloroethane	140	78-119
	Methylene Chloride	115	83-114
	Acetone	230	29-156
	2-Butanone	210	55-146
	Carbon Tetrachloride	75	77-127
	Bromodichloromethane	40	81-118
	2-Hexanone	160	47-150
	Tetrachloroethene	75	78-118
N1398.D	Methylene Chloride	130	78-119
	Carbon Disulfide	210	29-156
	2-Butanone	195	55-146
	Bromodichloromethane	40	81-118
N1503.D	Chloroethane	130	78-119
	Acetone	200	29-156
	2-Butanone	150	55-146
	2-Hexanone	170	47-150

Field ID	Analyte	Qualification
SB09B6-1A	2-Butanone Bromodichloromethane	UJ
SB09B6-1C	2-Butanone Carbon Tetrachloride Bromodichloromethane Tetrachloroethene	UJ UJ
SB09B10-1A	2-Butanone Bromodichloromethane	UJ
SB09B10-1B	2-Butanone Carbon Tetrachloride Bromodichloromethane Tetrachloroethene	UJ UJ
SB09A2-1A	Methylene Chloride	U
SB09C2-1A	Chlorobenzene	J
FB 120798	Carbon Tetrachloride Bromodichloromethane Trichloromethane 1,1,2-Trichloroethane	UJ UJ UJ UJ
SB51B7-1A	2-Butanone Bromodichloromethane	UJ
FB 120898	Carbon Tetrachloride Bromodichloromethane Dibromochloromethane 1,1,2-Trichloroethane	UJ UJ UJ UJ
SB28A2-1A	2-Butanone Bromodichloromethane	UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB09B10-1B	Bromodichloromethane	41/44	81-118	7	20
	Acetone	78/122	29-156	44	20
	2-Butanone	139/162	55-146	15	20
	4-Methyl-2-Pentanone	133/149	58-141	11	20
	Tetrachloroethene	66/77	78-118	15	20
	Styrene	80/72	77-118	10	20

Field ID	Analyte	Qualification

As suggested in Functional Guidelines, no qualification of the data based on MS/MSD data alone were made.

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

NA

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Yes.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
SB09B4-1A	VOC	All	straight
SB09A2-1C	VOC	All	1:5
SB09C1-1A	VOC	All	1:5

Field ID	Analysis	Analyte	Dilution Factor
SB09C1-1B	VOC	All	1:5
SB50A1-4A	VOC	All	1:2
SB09B8-1A	VOC	All	1:5
SB09B8-1B	VOC	All	1:2
SB09A2-1A	VOC	All	straight
SB09A2-1A	VOC	All	1:2
SB09A1-4B	VOC	All	1:5
SB09B4-1B	VOC	All	1:5
SB09A2-1C	VOC	All	1:5
SB09C1-1A	VOC	All	1:5
SB09C1-1B	VOC	All	1:5
SB09C2-1A	VOC	All	1:5
SB09C2-1B	VOC	All	1:5

#### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): H2513

Reviewer: Robert Mallisee / John Keith

Date Reviewed: 1/12/99

Parameter(s): VOCs

Sample Identification #	Sample Identification #
SB28A2-1C	SB08L1-6C
SB28A2-2A	SB31A2-2A
SB28A2-2C	SB31A2-2B
SB28A1-2A	SB12E2-1A
SB28A1-2C	SB12E2-1C
SB09B7-1A	SB09B11-1A
SB09B7-1C	SB09B11-1C
SB12A1-1C	SB28A1-1A
SB50A1-5A	SB28A1-1C
SB08L1-6A	FB120998A

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Spike summary sheets is missing for Id K1965.D (12/20/98)

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The original case narrative included incorrect information for the QC Association table... all samples were from another SDG. The laboratory submitted a revised case narrative for the SDG.

The laboratory case narrative indicated that some of the quant report concentrations do not match the forms I's since the multiplier was calculated incorrectly in the instrument room. These issues are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VLKN8	Methylene Chloride	1	SB28A2-1C SB28A2-2A SB28A2-2C SB09B7-1C
VLKN9	Methylene Chloride	0.8	SB28A1-2A SB28A1-2C SB09B7-1A SB12A1-1C SB50A1-5A SB08L1-6A AB08L1-6C SB12E2-1A SB12E2-1C SB09B11-1A SB28A1-1A SB28A1-1C
VLKNB	Methylene Chloride	2	SB28A1-1CFMS SB28A1-1CFMSD
VLKNU	Methylene Chloride Acetone	2 12	SB28A2-2CRE

Field ID	Analyte	New RL	Qualification
SB28A2-1C	Methylene Chloride	13	U
SB28A2-2A	Methylene Chloride	9	U
SB28A2-2C	Methylene Chloride	10	U
SB28A1-2A	Methylene Chloride	12	U
SB09B7-1A	Methylene Chloride	50	U
SB12A1-1C	Methylene Chloride	11	U
SB12A1-1C	Acetone	11	U
SB50A1-5A	Methylene Chloride	10	U
SB50A1-5A	Acetone	22	U
SB08L1-6A	Methylene Chloride	10	U

Field ID	Analyte	New RL	Qualification
SB08L1-6A	Acetone	54	U
SB08L1-6C	Acetone	36	U
SB12E2-1A	Acetone	16	U
SB12E2-1C	Methylene Chloride	15	U
SB12E2-1C	Acetone	15	U
SB09B11-1A	Acetone	20	U
SB28A1-1A	Methylene Chloride	10	U
SB28A1-1A	Acetone	12	U
SB28A1-1C	Methylene Chloride	9	U
SB28A1-1C	Acetone	10	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria	DCS RPD	RPD Criteria
K1965	Chloroethane	130	78-119		
K1965	Acetone	195	29-156		
K1965	2-Hexanone	190	47-150		
N1382	Chloroethane	130	78/119		
N1382	Acetone	195	29/156		
N1382	2-Hexanone	190	47/150		
N1398	Chloroethane	130	78/119		
N1398	Acetone	210	29/156		
N1398	2-Butanone	195	55/146		
N1398	Bromodichloromethane	40	81/118		
N1415	Chloroethane	130	78/119		
N1415	Acetone	210	29/156		
N1415	1,2-Dichloroethene(total)	115	84/114		
N1415	2-Butanone	195	55/146		
N1415	Bromodichloromethane	40	81/118		
N1415	2-Hexanone	165	47/150		
N1449	Chloroethane	145	78/119		
N1449	Methylene Chloride	120	83/114		
N1449	Acetone	220	29/156		
N1449	Vinyl Acetate	195	16/144		
N1449	2-Butanone	230	55/146		
N1449	1,2-Dichloropropane	135	77/125		
N1449	2-Hexanone	190	47/150		

LCS ID	LCS Compound	LCS Recovery	LCS Criteria	DCS RPD	RPD Criteria
N1449	1,1,2,2-Tetrachloroethane	125	76/118		
N1589	Chloroethane	130	78/119		
N1589	Acetone	210	29/156		
N1589	Methylene Chloride	115	83/114		
N1589	2-Butanone	220	55/146		
N1589	2-Hexanone	190	47/150		
O1369	Chloroethane	125	78/119		
O1369	Acetone	165	83/114		
O1369	Carbon Tetrachloride	70	77/127		
O1369	Trichloroethene	80	82/114		
O1369	Dibromochloromethane	75	81/121		

Field ID	Analyte	Qualification
SB28A2-1C	Bromodichloromethane 2-Butanone	UJ
SB28A2-2A	Bromodichloromethane 2-Butanone	UJ
SB28A2-2C	Bromodichloromethane	UJ
SB28A2-1C	Bromodichloromethane	UJ
SB28A1-2A	Bromodichloromethane	UJ
SB28A1-2C	Bromodichloromethane 2-Butanone	UJ
SB09B7-1A	Bromodichloromethane 2-Butanone	UJ
SB12A1-1C	Bromodichloromethane	UJ
SB50A1-5A	Bromodichloromethane 2-Butanone	UJ
SB08L1-6A	cis-1,2-Dichloroethene	J
SB08L1-6A	trans-1,2-Dichloroethene	
SB08L1-6A	2-Butanone	J
SB08L1-6A	Bromodichloromethane	UJ
SB08L1-6A	4-Methyl-2-Pentanone	
SB08L1-6C	Chloroethane	J
SB08L1-6C	2-Butanone	J
SB08L1-6C	Bromodichloromethane	UJ
SB08L1-6C	4-Methyl-2-Pentanone	
SB12E2-1A	Bromodichloromethane cis-1,2-Dichloroethene 4-Methyl-2-Pentanone	UJ
SB12E2-1C	Bromodichloromethane 2-Butanone 4-Methyl-2-Pentanone	UJ
SB09B11-1A	Bromodichloromethane 2-Butanone	UJ

Field ID	Analyte	Qualification
	4-Methyl-2-Pentanone	
SB28A1-1A	Bromodichloromethane 2-Butanone	UJ
SB28A1-1C	Bromodichloromethane 2-Butanone 4-Methyl-2-Pentanone	UJ
FB 120998A	Carbon Tetrachloride	UJ
FB 120998A	Trichloroethene	UJ
FB 120998A	Dibromochloroethane	UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
SB28A2-2C	Toluene	165	81/117	qualify detects estimated, J
	Bromofluorobenzene	497	74/121	
SB28A2-2CRE	Bromofluorobenzene	791	74/121	
	Toluene	173	81/117	

Assoc. samples were all nondetect.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD/R PD Rec	Criteria
SB28A1-1C	Acetone	118/86/31	29-156
SB28A1-1C	Vinyl Acetate	222/191/15	16/144
SB28A1-1C	2-Butanone	157/150/5	55/146
SB28A1-1C	1,2-Dichloropropane	126/123/2	77/125
SB28A1-1C	4-Methyl-2-Pentanone	163/157/4	58/141
SB28A1-1C	2-Hexanone	172/164/5	47/150
SB28A1-1C	1,1,2,2-Tetrachloroethane	128/127/1	76/118

Field ID	Analyte	Qualification

No qualifications were made on assoc. samples.

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

Yes.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2513I

Reviewer: John Keith

Date Reviewed: 1/19/1998

Sample Identification #	Sample Identification #
SB12A1-1A	SB27E1-1A
SB20A1-2A	SB20A1-2B
SB24B1-1A	SB24B1-1B
SB25A1-1A	SB25A1-1B
SB31A1-1A	SB31A1-1C
SB31A1-2A	SB31A1-2C
SB31A1-3A	SB31A1-3C
SB31A2-1A	SB31A2-1C
SB31A3-1A	SB31A3-1B
SB31A3-2A	SB31A3-2B

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### 2.0 Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated samples SB31A1-2C, SB31A1-1C and SB24B1-1B were analyzed as medium level soils due to high target compound concentrations and/or high chromatography. Samples SB24B1-1B and SB31A1-1C were originally analyzed at 1:5 dilutions as medium level soils and results indicated a straight analysis as a medium level soil was necessary. The straight analyses for these samples had retention time shifts which went unnoticed by analyst. Both analyses were reported. These issues are addressed in the appropriate sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VLKNA	Acetone	8	SB12A1-1A SB20A1-2A SB20A1-2B SB24B1-1A SB25A1-1A SB25A1-1B SB31A1-1A SB31A1-2A SB31A1-3C SB31A2-1A SB31A2-1C SB31A3-1B
VLKNB	MeCl	2	SB31A3-2B
VLKNU	MeCl Acetone	2 12	SB27E1-1A SB31A1-3A SB31A3-2A
VLKKN	Acetone	840	SB24B1-1BDL SB31A1-1CDL

Field ID	Analyte	New RL	Qualification
SB12A1-1A	MeCl	11	U
	Acetone	43	U
SB31A3-2B	MeCl	9	U
	Acetone	13	U
SB27E1-1A	MeCl	12	U
	Acetone	130	U
SB20A1-2A	MeCl	10	U
	Acetone	11	U
SB20A1-2B	MeCl	12	U
	Acetone	12	U
SB24B1-1A	MeCl	11	U
	Acetone	18	U
SB24B1-1B	MeCl	1300	U
	Acetone	1300	U
SB25A1-1A	MeCl	11	U
	Acetone	11	U
SB25A1-1B	MeCl	11	U
	Acetone	11	U

Field ID	Analyte	New RL	Qualification
SB31A1-1A	MeCl	13	U
	Acetone	25	U
SB31A1-1C	MeCl	1300	U
	Acetone	1300	U
SB31A1-2A	MeCl	10	U
	Acetone	33	U
SB31A1-2C	MeCl	960	U
SB31A1-3A	MeCl	11	U
	Acetone	34	U
SB31A1-3C	MeCl	11	U
	Acetone	32	U
SB31A2-1A	MeCl	11	U
	Acetone	26	U
SB31A2-1C	MeCl	10	U
	Acetone	33	U
SB31A3-1A	MeCl	11	U
	Acetone	44	U
SB31A3-1B	MeCl	9	U
	Acetone	24	U
SB31A3-2A	MeCl	10	U
	Acetone	26	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
K1943.D	Acetone	195	29-156
	2-Hexanone	170	47-150
	Chlorobenzene	120	77-118
K1965.D	Chloroethane	130	78-119
	Acetone	195	29-156
	2-Hexanone	190	47-150
N1430.D	Bromomethane	125	66-121
	Vinyl Chloride	130	63-129
	Chloroethane	145	78-119
	Acetone	230	29-156
	Vinyl Acetate	190	16-144
	1,1-Dichloroethene	125	78-122
	1,2-Dichloroethene (total)	118	84-114
	2-Butanone	220	55-146

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
	1,2-Dichloropropane	140	77-125
	2-Hexanone	190	47-150
N1449.D	Chloroethane	145	78-119
	Methylene Chloride	120	83-114
	Acetone	220	29-156
	Vinyl Acetate	195	16-144
	2-Butanone	230	55-146
	1,2-Dichloropropane	135	77-125
	2-Hexanone	190	47-150
	1,1,2,2-Tetrachloroethane	125	76-118
N1589.D	Chloroethane	130	78-119
	Methylene Chloride	115	73-114
	Acetone	210	29-156
	2-Butanone	220	55-146
	2-Hexanone	190	47-150

Field ID	Analyte	Qualification
SB12A1-1A	Bromomethane	J
	cis-1,2-Dichloroethene	J
	2-Butanone	
SB31A3-2B	2-Butanone	
SB27E1-1A	2-Butanone	J
	2-Hexanone	
SB20A1-2A	2-Butanone	
SB24B1-1A	2-Butanone	
	4-Methyl-2-Pentanone	
SB24B1-1B	Chloroethane	J
SB31A1-1A	cis-1,2-Dichloroethene	j
	trans-1,2-Dichloroethene	
	2-Butanone	
SB31A1-1C	2-Hexanone	
SB31A1-2A	1,1,1-Trichloroethane	
SB31A1-2C	2-Hexanone	J
SB31A1-3A	2-Butanone	J
SB31A1-3C	2-Butanone	
	4-Methyl-2-Pentanone	
SB31A2-A1	2-Butanone	
	4-Methyl-2-Pentanone	
SB31A2-1C	2-Butanone	
	4-Methyl-2-Pentanone	
SB31A3-1A	2-Butanone	J
SB31A3-1B	2-Butanone	
	4-Methyl-2-Pentanone	
SB31A3-2A	2-Butanone	

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

## 7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

No.

*Were MS/MSD recoveries within evaluation criteria?*

NA.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria

Field ID	Analyte	Qualification

## Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

## Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

???

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
SB31A1-2C	VOC	All	1:5
SB24B1-1B	VOC	All	straight
SB31A1-1C	VOC	All	straight

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2513J

Reviewer: John Keith

Date Reviewed: 1-23-1999

Sample Identification #	Sample Identification #
SB8LI-4A	SB8LI-4C
SB12B5-1A	SB12B5-1C
SB12B6-1A	SB12B6-1C
SB13I1-1A	SB13I1-1C
SB17A5-1A	SB17A5-1C
SB27E1-1B	SB27E6-1A
SB27E6-1B	SB27E7-1A
SB27E7-1B	SB27E8-1A
SB27E8-1C	SB33A1-1A
SB33A1-1B	SB50A1-6A

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated sample SB17A5-1C was analyzed as a medium level soil due to high chromatography. Some of the quant report concentrations do not match the form I's since the multiplier has been manually edited on the quant report and the form I's are calculated using the correct sample weights and percent moistures. These issues are addressed in the appropriate sections below.

### 3.0 Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes:

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKNB	MeCl	2	SB8LI-4A SB8LI-4C SB12B5-1A SB12B5-1C SB12B6-1A SB13I1-1A
VBLKNC	MeCl	2	SB27E6-1A SB12B6-1C SB27E6-1B SB27E7-1A SB27E7-1B SB27E8-1A SB27E8-1C SB33A1-1A SB33A1-1B SB50A1-6A
VBLKNU	MeCl Acetone	2 12	SB13I1-1C SB17A5-1A SB27E1-1B

Field ID	Analyte	New RL	Qualification
SB8LI-4A	MeCl	9	U
	Acetone	9	U
SB8LI-4C	MeCl	12	U
	Acetone	12	U
SB12B5-1A	MeCl	10	U
	Acetone	22	U
SB12B5-1C	MeCl	12	U
	Acetone	12	U
SB12B6-1A	MeCl	12	U
	Acetone	20	U
SB13I1-1A	MeCl	9	U
	Acetone	13	U
SB12B6-1C	MeCl	12	U
	Acetone	6	U
SB13I1-1C	MeCl	11	U
	Acetone	12	U
SB17A5-1A	MeCl	13	U
	Acetone	13	U
SB17A5-1C	MeCl	1300	U
	Acetone	1400	U

Field ID	Analyte	New RL	Qualification
SB27E1-1B	MeCl	9	U
SB27E6-1A	MeCl	10	U
	Acetone	26	U
SB27E6-1B	MeCl	12	U
	Acetone	13	U
SB27E7-1A	MeCl	11	U
	Acetone	180	U
SB27E7-1B	MeCl	11	U
	Acetone	11	U
SB27E8-1A	MeCl	9	U
	Acetone	19	U
SB27E8-1C	MeCl	11	U
	Acetone	8	U
SB33A1-1A	MeCl	13	U
	Acetone	12	U
SB33A1-1B	MeCl	14	U
	Acetone	15	U
SB50A1-6A	MeCl	10	U
	Acetone	36	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
K1965.D	Chloroethane	130	78-119
	Acetone	195	29-156
	2-Hexanone	190	47-150
N1449.D	Chloroethane	145	78-119
	Methylene Chloride	120	83-114
	Acetone	220	29-156
	Vinyl Acetate	195	16-144
	2-Butanone	230	55-146
	1,2-Dichloropropane	135	77-125
	2-Hexanone	190	47-150
	1,1,2,2-Tetrachloroethane	125	76-118
N1465.D	Chloroethane	130	78-119
	Acetone	185	29-156
	2-Butanone	195	55-146
	2-Hexanone	130	77-125
		165	47-150

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1589.D	Chloroethane	130	78-119
	Methylene Chloride	115	83-114
	Acetone	210	29-156
	2-Butanone	220	55-146
	2-Hexanone	190	47-150

Field ID	Analyte	Qualification
SB8LI-4A	2-Butanone	
SB12B5-1A	Carbon Disulfide 2-Butanone	
SB12B5-1C	2-Butanone	
SB12B6-1A	2-Butanone	
SB13I1-1A	2-Butanone	
SB13I1-1C	2-Butanone	
SB17A5-1A	2-Butanone	
SB27E1-1B	Acetone	J
	2-Butanone	J
SB27E6-1A	2-Butanone	
SB27E6-1B	2-Butanone	
SB27E7-1A	Acetone	J
	2-Butanone	J
SB27E7-1B	2-Butanone	
SB27E8-1A	2-Butanone	
SB27E8-1C	2-Butanone	
SB33A1-1A	2-Butanone	
SB50A1-6A	2-Butanone	

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

All, except SB27E6-1AFMS, since associated sample, no quals.

Field ID	Surrogate	Recovery	Criteria	Action

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

See following table.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB1311-1A	Vinyl Acetate	198/188	16-144	5	20
	2-Butanone	142/150	55-146	6	20
	4-Methyl-2-Pentanone	145/170	58-141	16	20
	2-Hexanone	145/156	47-150	7	20
	1,1,2,2-Tetrachloroethane	118/131	76-118	10	20
SB27E6-1A	Acetone	100/84	29-156	48	20
	Vinyl Acetate	120/197	16-144	12	20
	2-Butanone	174/154	55-146	12	20
	1,2-Dichloropropane	131/133	77-125	2	20
	Bromoform	78/103	68-134	28	20
	4-Methyl-2-Pentanone	202/179	58-141	12	20
	2-Hexanone	204/180	47-150	12	20
	Tetrachloroethene	115/75	78-118	42	20
	1,1,2,2-Tetrachloroethane	113/133	76-118	16	20

OR

MS/MSD ID	Analyte	MS/MSD/RPD Rec	Criteria

Field ID	Analyte	Qualification

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

????

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

NA.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2513K

Reviewer: John Keith

Date Reviewed: 1/23-1999

Sample Identification #	Sample Identification #
SB5111-1A	FB 121098
SB13E1-1A	SB13E1-1B
SB13J1-1A	SB13J1-1B
SB17B1-1A	SB17B1-1C
SB27A1-1A	SB27A1-1C
SB27B1-1A	SB27B1-1C
SB13B1-1A	SB13B1-1B
SB13C1-1A	SB13C1-1B
SB13D1-1A	SB13D1-1C
SB13D1-2A	SB13D1-2C

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated samples SB13D1-1A and SB13E1-1B were analyzed as medium level soils due to high target compound concentrations and/or high chromatography.

Some of the quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant report and the form I's are calculated using the correct sample weights and percent moistures.

These issues are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes:

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKNC	MeCl	2	SB51I1-1A
VBLKNR	MeCl	3	SB13E1-1A
	Acetone	7	SB13J1-1A
			SB13J1-1B
			SB17B1-1A
			SB17B1-1C
			SB27A1-1A
			SB27A1-1C
			SB27B1-1A
			SB27B1-1C
			SB13B1-1B
			SB13C1-1A
VBLKNS	MeCl	2	SB13B1-1A
	Acetone	8	SB13C1-1B
	Xylene	0.2	SB13D1-2A
			SB13D1-2C
VBLKNT	MeCl	2	SB13D1-1C

Field ID	Analyte	New RL	Qualification
SB51I1-1A	MeCl	11	U
	Acetone	16	U
SB13E1-1A	MeCl	10	U
	Acetone	31	U
SB13J1-1A	MeCl	10	U
	Acetone	10	U
SB13J1-1B	MeCl	9	U
	Acetone	28	U
SB17B1-1A	MeCl	11	U
	Acetone	11	U
SB17B1-1C	MeCl	10	U
	Acetone	31	U
SB27A1-1A	MeCl	10	U
	Acetone	54	U

Field ID	Analyte	New RL	Qualification
SB27A1-1C	MeCl	10	U
	Acetone	34	U
SB27B1-1A	MeCl	10	U
	Acetone	21	U
SB27B1-1C	MeCl	12	U
	Acetone	19	U
SB13B1-1B	MeCl	12	U
	Acetone	46	U
SB13C1-1A	MeCl	10	U
	Acetone	60	U
SB13B1-1A	MeCl	10	U
	Acetone	55	U
SB13C1-1B	MeCl	9	U
	Acetone	20	U
SB13D1-2A	MeCl	10	U
	Acetone	17	U
SB13E1-1B	MeCl	2600	U
	Acetone	2600	U
SB13D1-1C	MeCl	9	U
	Acetone	23	U
SB13D1-2C	MeCl	10	U
	Acetone	15	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
M1502.D	Vinyl Chloride	130	63-129
	Chloroethane	140	78-119
	Acetone	170	29-156
	Carbon Disulfide	120	78-119
	1,2-Dichloroethene (total)	118	84-114
	2-Butanone	180	55-146
	Carbon Tetrachloride	140	77-127
	Dibromochloromethane	125	81-121
	2-Hexanone	185	47-150
	1,1,2,2-Tetrachloroethane	120	76-118
	Chlorobenzene	120	77-118
	Ethylbenzene	120	82-113
	Styrene	120	77-118

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
M1254.D	Acetone	170	29-156
	2-Butanone	160	55-146
	1,1,2,2-Tetrachloroethane	120	76-118
N1465.D	Chloroethane	130	78-119
	Acetone	185	29-156
	2-Butanone	195	55-146
	1,2-Dichloropropane	130	77-125
	2-Hexanone	165	47-150
N1541.D	Chloroethane	130	78-119
	Acetone	255	29-156
	Vinyl Acetate	150	16-144
	2-Butanone	215	55-146
	2-Hexanone	190	47-150
N1556.D	Chloroethane	140	78-119
	Acetone	235	29-156
	2-Butanone	170	16-144
	2-Hexanone	220	55-146
		185	47-150
N1572.D	Chloroethane	150	78-119
	Acetone	230	29-156
	Vinyl Acetate	180	16-144
	1,1-Dichloroethene	125	78-122
	2-Butanone	240	55-146
	1,2-Dichloropropane	140	77-125
	2-Hexanone	195	47-150
	1,1,2,2-Tetrachloroethane	120	76-118

Field ID	Analyte	Qualification
SB5111-1A	2-Butanone	
SB13E1-1A	2-Butanone	
SB13J1-1B	2-Butanone	J
SB17B1-1C	2-Butanone	J
SB27A1-1A	2-Butanone	J
SB27B1-1A	2-Butanone	
SB27B1-1C	2-Butanone	
SB13B1-1B	2-Butanone	J
SB13C1-1A	2-Butanone	J
SB13B1-1A	2-Butanone	J
SB13C1-1B	2-Butanone	
SB13E1-1B	2-Butanone	
SB13D1-1A	2-Butanone	
SB13D1-1C	2-Butanone	J
SB13D1-2C	2-Butanone	

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB28A1-1C	Acetone	118/86	29-156	31	20
	Vinyl Acetate	222/191	16-144	15	20
	2-Butanone	157/150	55-146	5	20
	1,2-Dichloropropane	126/123	77-125	2	20
	4-Methyl-2-Pentanone	163/157	58-141	4	20
	2-Hexanone	172/164	47-150	5	20
	1,1,2,2-Tetrachloroethane	128/127	76-118	1	20

OR

MS/MSD ID	Analyte	MS/MSD/RPD Rec	Criteria

Field ID	Analyte	Qualification

## Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### **Field Duplicate Results**

*Were field duplicate samples collected as part of this SDG?*

????

### **Sample Dilutions**

*Were samples diluted which exceed 10X QAPP limits?*

?????.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### **Additional Qualifications**

*Were additional qualifications applied?*

NA.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2513L

Reviewer: John Keith

Date Reviewed: 1/20/1999

Sample Identification #	Sample Identification #
SB13D1-3A	SB13D1-3C
SB27C1-1A	SB27C1-1C
SB27E3-1A	SB27E4-1C
SB27E4-1A	SB27E4-1C

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated sample SB13D1-3C was analyzed at a 1:10 dilution as a medium level soil due to high chromatography.

Some of the quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant report and the form I's are calculated using the correct sample weights and percent moistures.

Sample SB13D1-3A was analyzed as a medium level soil with results indicating a low level analysis was needed. The low level analysis had acetone over the calibration curve. The low level analysis was reported per client's request.

These issues are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.:

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKNS	MeCl	2	SB27C1-1A
	Acetone	8	SB27C1-1C
	Xylene	0.2	SB27E3-1A
			SB27E3-1C
			SB27E4-1A
VBLKNT	MeCl	2	SB27E4-1C
VBLKNI	MeCl	4	SB13D1-3A
	Acetone	8	

Field ID	Analyte	New RL	Qualification
SB13D1-3C	MeCl	23000	U
	Acetone	23000	U
SB27C1-1A	MeCl	9	U
	Acetone	9	U
SB27C1-1C	MeCl	12	U
	Acetone	12	U
SB27E3-1A	MeCl	10	U
	Acetone	28	U
SB27E3-1C	MeCl	11	U
	Acetone	11	U
SB27E4-1A	MeCl	10	U
	Acetone	14	U
SB27E4-1C	MeCl	13	U
	Acetone	12	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
M1502.D	Vinyl Chloride	130	63-129
	Chloroethane	140	78-119
	Acetone	170	29-156
	Carbon Disulfide	120	78-119
	1,2-Dichloroethene (total)	118	84-114
	2-Butanone	180	55-146
	Carbon Tetrachloride	140	77-127
	Dibromochloromethane	125	81-121
	2-Hexanone	185	47-150
	1,1,2,2-Tetrachloroethane	120	76-118
	Chlorobenzene	120	77-118
	Ethylbenzene	120	82-113
	Styrene	120	77-118
N1686.D	Chloroethane	150	78-119
	Acetone	250	29-156
	1,2-Dichloroethane	75	80-123
	2-Butanone	270	55-146
	Carbon Tetrachloride	70	77-127
	1,2-Dichloropropane	135	77-125
	4-Methyl-2-Pentanone	150	58-141
	2-Hexanone	210	47-150
N1556.D	1,1,2,2-Tetrachloroethane	120	76-118
	Methylene Chloride	140	78-119
	Carbon Disulfide	235	29-156
	1,1-Dichloroethene	170	16-144
	2-Butanone	220	55-146
N1572.D	2-Hexanone	185	47-150
	Methylene Chloride	150	78-119
	Carbon Disulfide	230	29-156
	1,1-Dichloroethene	180	16-144
	1,1-Dichloroethane	125	78-122
	2-Butanone	240	55-146
	1,2-Dichloropropane	140	77-125
	2-Hexanone	195	47-150
	1,1,2,2-Tetrachloroethane	120	76-118

Field ID	Analyte	Qualification
SB13D1-3C	2-Butanone	
	1,1,2,2-Tetrachloroethane	
	Ethylbenzene	
SB13D13A	Acetone	J
	1,2-Dichloroethane	UJ
	Carbon Tetrachloride	UJ
	4-Methyl-2-Pentanone	

Field ID	Analyte	Qualification
SB27E3-1A	2-Butanone	
SB27E3-1C	2-Butanone	
SB27E4-1A	2-Butanone	
SB27E4-1C	2-Butanone	

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB09B10-1B	Acetone	78/122	29-156	44	20
	2-Butanone	139/162	55-146	15	20
	Bromodichloromethane	41/44	81-118	7	20
	4-Methyl-2-Pentanone	133/149	58-141	11	20
	Tetrachloroethene	66/77	78-118	15	20
	Styrene	72/80	77-118	10	20

OR

MS/MSD ID	Analyte	MS/MSD/RPD Rec	Criteria

Field ID	Analyte	Qualification

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### 9.0 Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

?????

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

NA

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2738A

Reviewer: John Keith

Date Reviewed: 1/24/1999

Sample Identification #	Sample Identification #
SB16A1-3A	SB16A1-3B
SB16A1-2A	SB16A1-2B
SB16A1-4A	SB16A1-4B
SB12D1-2A	SB12D1-2B
SB8L1-2A	SB8L1-2C
SB12E1-1A	SB12E1-1C
SB12B4-1A	SB12B4-1C
SB12B6-2A	SB12B6-2B
SB16A1-1A	SB16A2-1B
SB8L13A	SB8L1-3B

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated samples SB8LI-2C and SB8LI-3A were analyzed with results having a surrogate out of criteria. These analyses were reported per client's request.

Some of the quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant report and the form I's are calculated using the correct sample weights and percent moistures.

These issues are addressed in the appropriate sections below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes:

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKNT	MeCl	2	SB16A1-3A SB16A1-3B SB16A1-2A SB16A1-2B SB16A1-4A SB16A1-4B SB12D1-2A SB12D1-2B SB8L1-2A SB8L1-2C
VBLKNV	MeCl Acetone	2 14	SB12E1-1A SB12E1-1C SB12B4-1A SB12B4-1C AB12B6-2A SB12B6-2B SB16A1-1A SB16A1-1B
VBLKNW	MeCl Acetone	2 18	SB8L1-3A
VBLKNX	MeCl Acetone	10 7	SB8L1-3B

Field ID	Analyte	New RL	Qualification
SB16A1-3A	MeCl	11	U
	Acetone	19	U
SB16A1-3B	MeCl	11	U
	Acetone	41	U
SB16A1-2A	MeCl	9	U
	Acetone	32	U
SB16A1-2B	Acetone	73	U
SB16A1-4A	MeCl	11	U
	Acetone	42	U

Field ID	Analyte	New RL	Qualification
SB16A1-4B	MeCl	10	U
	Acetone	24	U
SB12D1-2A	MeCl	10	U
	Acetone	34	U
SB12D1-2B	MeCl	9	U
	Acetone	28	U
SB8L1-2A	MeCl	10	U
	Acetone	31	U
SB8L1-2C	MeCl	10	U
	Acetone	54	U
SB12E1-1A	MeCl	9	U
	Acetone	37	U
SB12E1-1C	MeCl	11	U
	Acetone	10	U
SB12B4-1A	MeCl	9	U
	Acetone	20	U
SB12B4-1C	MeCl	11	U
	Acetone	9	U
SB12B6-2A	MeCl	9	U
	Acetone	23	U
SB12B6-2B	MeCl	12	U
	Acetone	15	U
SB16A1-1A	MeCl	13	U
	Acetone	22	U
SB16A1-1B	MeCl	10	U
	Acetone	110	U
SB8L1-3A	MeCl	10	U
	Acetone	31	U
SB8L1-3B	MeCl	10	U
	Acetone	22	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
N1572.D	Chloroethane	150	78-119
	Acetone	230	29-156
	Vinyl Acetate	180	16-144
	1,1-Dichloroethene	125	78-122
	2-Butanone	240	55-146
	1,2-Dichloropropane	140	77-125
	2-Hexanone	195	47-150
	1,1,2,2-Tetrachloroethane	120	76-118
N1605.D	Bromomethane	125	66-121
	Chloroethane	140	78-119
	Acetone	265	29-156
	2-Butanone	210	55-146
	2-Hexanone	165	47-150
N1621.D	Chloroethane	130	78-119
	Acetone	195	29-156
	2-Butanone	190	55-146
	2-Hexanone	165	47-150
N1637.D	Chloroethane	120	78-119
	Methylene Chloride	120	83-114
	Acetone	210	29-156
	Chloroform	75	83-114
	1,2-Dichloroethane	75	80-123
	2-Butanone	190	55-146
	Carbon Tetrachloride	70	77-127
	Bromodichloromethane	75	81-118
	Dibromochloromethane	75	81-121
	trans-1,3-Dichloropropene	70	80-128
	Tetrachloroethene	75	78-118

Field ID	Analyte	Qualification
SB16A1-3A	2-Butanone	
SB16A1-3B	2-Butanone	
SB16A1-2A	2-Butanone	
SB16A1-2B	2-Butanone	
SB16A1-4A	2-Butanone	
SB16A1-4B	2-Butanone	
SB12D1-2A	2-Butanone	
SB12D1-2B	2-Butanone	
SB8L1-2A	2-Butanone	
SB12E1-1A	2-Butanone	J
SB12E1-1C	2-Butanone	
SB12B4-1A	2-Butanone	
SB12B4-1C	2-Butanone	
SB12B6-2A	2-Butanone	
SB12B6-2B	2-Butanone	
SB16A1-1A	2-Butanone	

Field ID	Analyte	Qualification
SB16A1-1B	2-Butanone	J
SB8L1-3B	Chloroform	
	1,2-Dichloroethane	UJ
	2-Butanone	J
	Carbon Tetrachloride	UJ
	Bromodichloromethane	UJ
	Dibromochloromethane	UJ
	trans-1,3-Dichloropropene	UJ
	Tetrachloroethene	UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
SB8L1-2C	Toluene	122	81-117	Qualify all J/UJ
SB8L1-3A	Toluene	129	81-117	Qualify all J/UJ

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB09A1-2B	Vinyl Chloride	138/110	63-129	22	20
	Acetone	252/276	29-156	9	20
	Vinyl Acetate	181/178	16-144	2	20
	1,1-Dichloroethane	5/2	80-119	86	20
	1,2-Dichloroethene	0/0	84-114	0	20
	2-Butanone	214/190	55-146	12	20
	1,1,1-Trichloroethane	0/0	72-128	0	20
	Carbon Tetrachloride	76/93	77-127	20	20
	Trichloroethene	0/0	82-114	0	20
	Dibromochloromethane	98/124	81-121	23	20
	4-Methyl-2-Pentanone	193/190	58-141	2	20
	2-Hexanone	190/198	47-150	4	20
	Tetrachloroethene	0/0	78-118	0	20
	1,1,2,2-Tetrachloroethane	114/133	76-118	15	20

OR

MS/MSD ID	Analyte	MS/MSD/RPD Rec	Criteria

Field ID	Analyte	Qualification

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

????

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

NA

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 7098-2738B

Reviewer: John D. Keith

Date Reviewed: January 23, 1998

Sample Identification #	Sample Identification #	Sample Identification #	Sample Identification #
SB6A2-2A	SB62A2-2A	SB6A1-1A	SB6A2-1A
SB6A2-2C	SB16D1-3A	SB6A2-1B	SB6A3-1C
SB16D1-3C	SB12D1-3A	SB6A2-3A	SB5A2-1A
SB50A1-7A	FB121598A	SB6A2-3C	SB5A2-1C
FB121598	SB6A1-1C	SB6A3-1A	SB50A1-8A

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated the following:

*"The quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant reports and the form I's are calculated using the correct sample weights and percent moistures."*

The concentrations reported on the form I's were recalculated and verified for ten percent of the detected compounds.

Sample SBGA3-1C was analyzed in an analytical batch without an LCS.

The COC indicated that for sample SB6A2-2A indicated that three encore samplers were sent, but six were received therefore this sample was used for QC. The COC indicated six encore samplers were sent for sample SB6A2-2C, but three were received therefore QC was not performed on this sample. The narrative indicated that the client was contacted on 12-28-98 (corrective action #7543).

These issues are addressed in the appropriate sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKN1	Methylene Chloride Acetone	4 8	SB6A2-1B
VBLKMB	Acetone	14	FB121598 FB121598A
VBLKLLK	Methylene Chloride Acetone	10 17	SB62A2-2A SB16D1-3A SB16D1-3C SB50A1-7A SB6A1-1A SB6A1-1C SB6A2-3A
VBLKNZ	Methylene Chloride Acetone 2-Butanone	4 15 2	SB6A2-2A SB6A2-2C SB12D1-3A SB6A2-1A SB6A2-3C SB6A3-1A SB5A2-1A SB5A2-1C SB50A1-8A

Field ID	Analyte	New RL	Qualification
SB6A2-2A	Methylene Chloride	10	U
SB6A2-2A	Acetone	14	U
SB6A2-2A	2-Butanone	5	U
SB6A2-2C	Methylene Chloride	8	U
SB6A2-2C	Acetone	23	U
SB6A2-2C	2-Butanone	8	U
SB62A2-2A	Acetone	11	U
SB16D1-3A	Methylene Chloride	11	U

Field ID	Analyte	New RL	Qualification
SB16D1-3A	Acetone	13	U
SB16D1-3C	Acetone	15	U
SB50A1-7A	Acetone	29	U
SB12D1-3A	Methylene Chloride	13	U
SB12D1-3A	Acetone	13	U
SB6A1-1A	Methylene Chloride	10	U
SB6A1-1A	Acetone	15	U
SB6A2-1A	Methylene Chloride	10	U
SB6A2-1A	Acetone	39	U
SB6A2-1A	2-Butanone	10	U
SB6A2-1B	Methylene Chloride	10	U
SB6A2-1B	Acetone	120	U
SB6A2-3A	Methylene Chloride	10	U
SB6A2-3A	Acetone	15	U
SB6A2-3C	Methylene Chloride	9	U
SB6A2-3C	Acetone	19	U
SB6A2-3C	2-Butanone	4	U
SB6A3-1A	Methylene Chloride	10	U
SB6A3-1A	Acetone	57	U
SB6A3-1A	2-Butanone	15	U
SB5A2-1A	Methylene Chloride	10	U
SB5A2-1A	Acetone	19	U
SB5A2-1A	2-Butanone	5	U
SB5A2-1C	Methylene Chloride	8	U
SB5A2-1C	Acetone	19	U
SB5A2-1C	2-Butanone	6	U
SB50A1-8A	Methylene Chloride	10	U
SB50A1-8A	Acetone	37	U
SB50A1-8A	2-Butanone	6	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes, with the exception of the following:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
L2297.D	Vinyl Chloride	140	63-129
	Chloroethane	140	78-119
	Methylene Chloride	140	83-114
	Acetone	295	29-156
	2-Butanone	230	55-146
	2-Hexanone	185	47-150
	Ethylbenzene	115	82-113

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
M1346.D	Chloroethane	125	78-119
	Acetone	170	29-156
N1669.D	Chloroethane	155	78-119
	Methylene Chloride	125	83-114
	Acetone	305	29-156
	1,1-Dichloroethene	125	78-122
	1,2-Dichloroethene	115	84-114
	2-Butanone	260	55-146
	1,2-Dichloropropane	140	77-125
	4-Methyl-2-Pentanone	145	58-141
	2-Hexanone	205	47-150
	1,1,2,2-Tetrachloroethane	125	76-118
N1686.D	Chloroethane	150	78-119
	Acetone	250	29-156
	1,2-Dichloroethane	75	80-123
	2-Butanone	270	55-146
	Carbon Tetrachloride	70	77-127
	1,2-Dichloropropane	135	77-125
	4-Methyl-2-Pentanone	150	58-141
	2-Hexanone	210	47-150
	1,1,2,2-Tetrachloroethane	120	76-118

Field ID	Analyte	Qualification
SB6A2-2C	Chloroethane	J
SB6A2-2C	4-Methyl-2-Pentanone	J
BS6A2-2C	2-Hexanone	J
SB6A2-1A	cis-1,2-Dichloroethene	J
SB6A2-1B	Chloroethane	J
SB6A2-1B	1,2-Dichloroethane	UJ
SB6A2-1B	2-Butanone	J
SB6A2-1A	Carbon Tetrachloride	UJ
SB6A2-1A	4-Methyl-2-Pentanone	J
SB6A2-2C	Chloroethane	J
SB6A2-2C	cis-1,2-Dichloroethene	J
SB6A2-2C	4-Methyl-2-Pentanone	J
SB6A3-1A	cis-1,2-Dichloroethene	J
SB6A3-1A	trans-1,2-Dichloroethene	J
SB5A2-1C	cis-1,2-Dichloroethene	J
SB50A1-8A	4-Methyl-2-Pentanone	J

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

Yes with the exception of the following:

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB6A2-2A	Vinyl Acetate	154/143	16-144	7	20
	Chloroform	80/85	83-114	6	20
	2-Butanone	176/176	55-146	0	20
	Carbon Tetrachloride	74/76	77-127	3	20
	4-Methyl-2-Pentanone	180/187	58-141	4	20
	2-Hexanone	172/183	47-150	6	20
	1,1,2,2-Tetrachloroethane	133/139	76-118	4	20

Field ID	Analyte	Qualification

As noted in Functional Guidelines, if MS/MSD recoveries for organic analyses are outside evaluation criteria, additional QC parameters should be reviewed to determine if qualifications are necessary. No qualification of the data was done based on MS/MSD data alone.

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

See Section 7.

*Were laboratory duplicate sample RPDs within criteria?*

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

??????????????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

Yes.

Field ID	Analyte	Qual
FB 121598	Methylene Chloride	U

Professional Judgment

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): #7098-2738D

Reviewer: John Keith

Date Reviewed: 1/20/1999

Sample Identification #	Sample Identification #
SB27D1-1C	SB1A1-1A
SB1A1-1C	SB1A1-2A
SB1A1-2C	SB3B1-1A
SB3B1-1C	SB5A1-1A
SB5A1-1C	SB7A1-1A
SB7A1-1C	SB17A2-4A
SB50A1-9A	FB121898
SB8L1-8A	SB8L1-8C
SB9B2-1A	SB9B2-1C
SB12-3A	SB12-3B

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated some of the quant report concentrations do not match the form I's since the multiplier was calculated incorrectly in the instrument room. The correct multiplier has been manually edited on the quant report and the form I's are calculated using the correct sample weights and percent moistures. These issues are addressed in the appropriate sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes:

Blank ID	Analyte	Conc.	Assoc. Samples
VBLKNY	MeCl	5	SB27D1-1C
	Acetone	11	SB17A2-4A
	2-Butanone	2	SB1A1-1A
			SB1A1-1C
			SB5A1-1A
			SB1A1-2C
			SB3B1-1A
			SB3B1-1C
			SB5A1-1C
			SB7A1-1A
			SB7A1-1C
VBLKN1	MeCl	4	SB50A1-9A
	Acetone	8	SB8LI-8A
			SB8LI-8C
			SB9B2-1A
			SB9B2-1C
			SB12-3A
			SB12-3B
VBLKN2	MeCl	2	SB1A1-2A
SBLKQQ	Di-n-butyl phthalate	14	SB8LI-8C
	bis (2-Ethylhexyl) phthalate	15	SB8LI-8A
	Acenaphthylene	25	SB9B2-1C
			SB12-3B
			SB9B2-1A
			SB12-3A

Field ID	Analyte	New RL	Qualification
SB1A1-1A	MeCl	10	U
	Acetone	17	U
	2-Butanone	6	U
SB1A1-1C	MeCl	11	U
	Acetone	37	U
	2-Butanone	16	U
SB1A1-2A	Acetone	11	U
SB1A1-2C	MeCl	18	U
	Acetone	74	U
	2-Butanone	33	U
SB3B1-1A	Acetone	90	U
	2-Butanone	19	U

Field ID	Analyte	New RL	Qualification
SB3B1-1C	MeCl	10	U
	Acetone	35	U
	2-Butanone	10	U
SB5A1-1A	MeCl	8	U
	Acetone	30	U
	2-Butanone	8	U
SB5A1-1C	MeCl	10	U
	Acetone	25	U
	2-Butanone	9	U
SB7A1-1A	Acetone	18	U
	2-Butanone	5	U
SB7A1-1C	MeCl	11	U
	Acetone	14	U
	2-Butanone	7	U
SB17A2-4A	MeCl	10	U
	Acetone	14	U
	2-Butanone	5	U
SB50A1-9A	MeCl	10	U
	Acetone	14	U
SB8LI-8A	MeCl	10	U
	Acetone	24	U
SB8LI-8C	MeCl	10	U
	Acetone	27	U
SB9B2-1A	MeCl	11	U
	Acetone	15	U
SB9B2-1C	MeCl	11	U
	Acetone	28	U
SB12-3A	MeCl	11	U
	Acetone	37	U
SB27D1-1C	MeCl	13	U
	Acetone	10	U
SBLI-8A	Di-n-butyl phthalate	350	U
	bis(2-Ethylhexyl) phthalate	350	U
SB8LI-8C	Di-n-butyl phthalate	400	U
	bis(2-Ethylhexyl) phthalate	400	U
SB9B2-1A	Acenaphthylene	350	U
SB9B2-1A	Di-n-butyl phthalate	440	U
	bis(2-Ethylhexyl) phthalate	440	U
SB9B2-1C	Di-n-butyl phthalate	450	U
	bis(2-Ethylhexyl) phthalate	450	U
SB12-3A	Acenaphthylene	360	U
SB12-3A	Di-n-butyl phthalate	360	U
	bis(2-Ethylhexyl) phthalate	360	U
SB12-3B	Di-n-butyl phthalate	410	U
	bis(2-Ethylhexyl) phthalate	410	U

Field ID	Analyte	New RL	Qualification

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
M1546.D	Vinyl Chloride	130	63-129
	Chloroethane	140	78-119
N1652.D	Bromomethane	130	66-121
	Chloroethane	150	78-119
	Methylene Chloride	130	83-114
	Acetone	265	29-156
	2-Butanone	245	55-146
	1,2-Dichloropropane	130	77-125
	2-Hexanone	200	47-150
	1,1,2,2-Tetrachloroethane	120	76-118
N1686.D	Chloroethane	150	78-119
	Acetone	250	29-156
	1,2-Dichloroethane	75	80-123
	Carbon Tetrachloride	70	77-127
	1,2-Dichloropropane	135	77-125
	4-Methyl-2-Pentanone	150	58-141
	2-Hexanone	210	47-150
	1,1,2,2-Tetrachloroethane	120	76-118
N1733.D	Chloroethane	140	78-119
	Methylene Chloride	115	83-114
	Acetone	220	29-156
	2-Butanone	225	55-146
	1,2-Dichloropropane	130	77-125
	2-Hexanone	175	47-150

Field ID	Analyte	Qualification
SB1A1-2A	2-Butanone	
SB50A1-9A	1,2-Dichloroethane	UJ
	Carbon Tetrachloride	UJ
	4-Methyl-2-Pentanone	
SB8L1-8A	1,2-Dichloroethane	UJ
	Carbon Tetrachloride	UJ

Field ID	Analyte	Qualification
SB8LI-8C	1,2-Dichloroethane	UJ
	Carbon Tetrachloride	UJ
	4-Methyl-2-Pentanone	
SB9B2-1A	1,2-Dichloroethane	UJ
	Carbon Tetrachloride	UJ
	4-Methyl-2-Pentanone	
SB9B2-1C	1,2-Dichloroethane	UJ
	Carbon Tetrachloride	UJ
SB12-3A	1,2-Dichloroethane	UJ
	Carbon Tetrachloride	UJ
	4-Methyl-2-Pentanone	

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SB17A2-4A	Chloromethane	69/115	32-156	50	20
	Vinyl Acetate	164/147	16-144	11	20
	1,2-Dichloroethane	79/108	80-123	10	20
	2-Butanone	179/179	55-146	0	20
	1,2-Dichloropropane	123/126	77-125	2	20
	4-Methyl-2-Pentanone	179/185	58-141	3	20
	2-Hexanone	175/189	47-150	8	20
	Tetrachloroethene	77/83	78-118	8	20
	1,1,2,2-Tetrachloroethane	131/140	76-118	7	20

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria
SBLKQQ	Phenol	91/35	26-90	7	35
	N-Nitroso-di-n-prop (1)	129/124	41-126	4	38
	Pentachlorophenol	112/115	17-109	3	47

OR

MS/MSD ID	Analyte	MS/MSD/RPD Rec	Criteria

Field ID	Analyte	Qualification

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

???

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99D058

Reviewer: Craig Johnson

Date Reviewed: 6/2/99

Sample Identification #	Sample Identification #
WC2-2D-S2	WC2-1D-S27
WC2-2D-S3	WC2-1D-S31
WC2-2D-S8	WC2-3D-S2
WC2-2D-S14	WC2-3D-S5
WC2-1D-S3	WC2-3D-S6
WC2-1D-S6	WC2-3D-S10
WC2-1D-S14	WC2-3D-S17
WC2-1D-S17	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated no problems were encountered. However, review of the data package identified holding time exceedances, blank contamination and outlying duplicate recoveries. These issues are discussed in the appropriate section below. The laboratory was contacted regarding the incorrect case narrative and has submitted a correct narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

No, the following samples were analyzed outside of HT criteria:

Field ID	Qualifier
WC2-2D-S2	J/UJ
WC2-2D-S3	J/UJ
WC2-2D-S8	J/UJ
WC2-2D-S14	J/UJ
WC2-1D-S3	J/UJ
WC2-1D-S6	J/UJ
WC2-1D-S14	J/UJ
WC2-1D-S17	J/UJ
WC2-1D-S27	J/UJ
WC2-1D-S31	J/UJ

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
CED004SB	CEC	0.167J	All in SDG

Field ID	Analyte	New RL	Qualification
NA			

No qualifications required. All results were greater than 5x the concentration reported in the blank sample

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
NA			

Field ID	Analyte	Qualification
NA		

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Not applicable for these parameters.

Field ID	Surrogate	Recovery	Criteria	Action

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

Yes

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

No, WC2-2D-S2 CEC duplicate recovery was 383. CEC result for sample WC2-2D-S2 was qualified as estimated J

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99D085

Reviewer: Craig Johnson

Date Reviewed: 6/2/99

Sample Identification #	Sample Identification #
WC5-1D-S2	
WC5-1D-S6	
WC5-1D-S12	
WC5-1D-S17	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated CEC percent differences were outside criteria. This issue is addressed in the laboratory duplicate section below. No additional problems were noted in the laboratory case narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

No

Blank ID	Analyte	Conc.	Assoc. Samples
NA			

Field ID	Analyte	New RL	Qualification
NA			

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
NA			

Field ID	Analyte	Qualification
NA		

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Not applicable for these parameters.

Field ID	Surrogate	Recovery	Criteria	Action

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

Yes.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

No, WC5-1D-S2 CEC duplicate recovery was 84%. CEC result for sample WC5-1D-S2 was qualified as estimated J

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99E014

Reviewer: Craig Johnson

Date Reviewed: 6/2/99

Sample Identification #	Sample Identification #
DP21-60	DP21-15
DP21-50	DP21-07
DP21-30	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated a wide variance in results for VOC analysis for two samples. The laboratory attributes the differences to nonhomogeneity of sample matrix since two different vials were used for analysis and the QC parameters were within criteria. Results for the original and diluted analyses are presented and should be considered acceptable.

The narrative also indicated LCS and spike recoveries outside evaluation criteria. These issues are addressed in the appropriate sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
IPE007WB	Zinc	0.0114J	All in SDG
IPE007WB	Selenium	0.0056J	All in SDG
IPE007WB	Thallium	0.0053	All in SDG

Field ID	Analyte	New RL	Qualification
DP21-60	Zinc	0.0325	U
DP21-50	Selenium	NA	U
DP21-50	Thallium	NA	U
DP21-15	Zinc	NA	U
DP21-15	Thallium	NA	U
DP21-07	Selenium	NA	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VOE1202X/C	Acetone	49/109/76	50-150/20
SVE004WL/C	Hexachlorocyclopentadiene	23/28/19	41-125/20

Field ID	Analyte	Qualification
DP21-60	Acetone	UJ
DP21-60	Hexachlorocyclopentadiene	UJ
DP21-50	Hexachlorocyclopentadiene	UJ
DP21-15	Hexachlorocyclopentadiene	UJ
DP21-07	Hexachlorocyclopentadiene	UJ

In addition, LCS RPDs were outside evaluation criteria for several analytes. Since the LCS and LCSD were within criteria, no qualification of data was required due to RPDs outside criteria.

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action
NA				

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery	MS/MSD Criteria
DP21-15	Antimony	88/68/30	75-125/20

Field ID	Analyte	Qual
DP21-15	Antimony	UJ

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99E031

Reviewer: Craig Johnson

Date Reviewed: 5/28/99

Sample Identification #	Sample Identification #
DP22-30	DP22-40
DP22-20	DP23-60
DP22-08	DP23-50
DP22-60	DP23-40
DP22-50	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated LCS and surrogate recoveries were outside evaluation criteria, the re-analysis for SVOCs were completed outside of HT and several sample vials were received with air bubbles and/or cracked. The laboratory was instructed by Ben Bertolotti to analyze all samples with air bubbles. The air bubble were a result of the acid preservative reacting with the water, probably the presence of calcium carbonate. Since the data are field screening, the laboratory was instructed to analyze the samples and the data would be qualified as appropriate. The following qualifications were required due to the presence of small to medium air bubbles.

Field ID	Analytes	Qualification
DP22-30	All VOCs	J/UJ
DP22-30DL	All VOCs	J/UJ
DP22-50	All VOCs	J/UJ
DP22-50DL	All VOCs	J/UJ
DP23-60	All VOCs	J/UJ
DP23-60DL	All VOCs	J/UJ
DP23-50	All VOCs	J/UJ
DP23-50DL	All VOCs	J/UJ

The remaining issues are addressed in the appropriate sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

No, the diluted analyses for the samples DP22-50DL DP22-40DL were completed outside of HT criteria for VOC analysis. Since the samples were analyzed one day beyond HT and the samples were originally analyzed (without dilution) within HT criteria, no qualification of data was required.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

No.

Blank ID	Analyte	Conc.	Assoc. Samples
NA			

Field ID	Analyte	New RL	Qualification
NA			

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VOE1502L/D	Bromomethane	93/71/21	72-125/20
	Chloroethane	104/59/55	65-125/23
	Methylene chloride	122/81/41	75-125/20
VOE1602L/D	Acetone	85/56/41	50-150/20
	Bromomethane	81/63/25	72-125-20
	Chloroethane	98/66/38	65-125/20
	Dibromochloromethane	129/123/5	73-125/20
SVE006WL	2-Nitroaniline	123/129/5	50-125-20
	3-Nitroaniline	123/134/9	51-125/20
	4-Nitrophenol	138/148/7	25-131/20

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
	Di-n-octyl phthalate	120/129/7	34-126/20
	Hexachlorocyclopentadiene	32/38/16	41-125/20

Field ID	Analyte	Qualification
DP22-30	Chloroethane	J/UJ
DP22-20	Chloroethane	J/UJ
DP22-08	Chloroethane	J/UJ
DP22-60	Chloroethane	J/UJ
DP22-50	Chloroethane	J/UJ
DP22-40	Chloroethane	J/UJ
DP23-60	Chloroethane	J/UJ
DP23-50	Chloroethane	J/UJ
DP22-30	Bromomethane	J/UJ
DP22-20	Bromomethane	J/UJ
DP22-08	Bromomethane	J/UJ
DP22-50	Bromomethane	J/UJ
DP22-40	Bromomethane	J/UJ
DP23-60	Bromomethane	J/UJ
DP23-50	Bromomethane	J/UJ
DP22-30	Hexachlorocyclopentadiene	J/UJ
DP22-20	Hexachlorocyclopentadiene	J/UJ
DP22-08	Hexachlorocyclopentadiene	J/UJ
DP22-60	Hexachlorocyclopentadiene	J/UJ
DP22-50	Hexachlorocyclopentadiene	J/UJ
DP22-40	Hexachlorocyclopentadiene	J/UJ
DP23-60	Hexachlorocyclopentadiene	J/UJ
DP23-50	Hexachlorocyclopentadiene	J/UJ
DP23-40	Hexachlorocyclopentadiene	J/UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
DP22-60	2-Fluorobiphenyl	37	43-125	None, one surr./fraction out allowed
DP22-60RE	2-Fluorobiphenyl	37	43-125	None, one surr./fraction out allowed
DP23-60	Terphenyl-d14	40	42-126	None, one surr./fraction out allowed
DP23-60RE	Terphenyl-d14	40	42-126	None, one surr./fraction out allowed

\* No qualification of the data was made since only one surrogate per SVOC fraction in each sample was outside evaluation criteria.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

Yes.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

Yes, all within laboratory criteria.

*Were laboratory duplicate sample RPDs within criteria?*

Yes.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Yes, due to elevated levels of target compounds. Both the diluted and undiluted results are supplied.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99E036

Reviewer: Craig Johnson

Date Reviewed: 6/7/99

Sample Identification #	
DP23-15	DP24-15
DP23-08	DP24-08
DP24-55	DP23-30
DP24-45	DUP1
DP24-35	DUP2
DP24-25	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated LCS, surrogate and MS/MSD recoveries exceeded evaluation criteria. These issues are further addressed in the appropriate sections below. No additional problems were noted in the narrative.

Review of the cooler receipt form indicated several VOA vials were received with air bubbles. In many cases, the laboratory was able to use a vial that did not have an air bubble. The following samples were qualified as estimated J because all 3 VOA vials submitted for analysis had air bubbles present: DP23-15, DP24-08, and DUP1.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

No.

Blank ID	Analyte	Conc.	Assoc. Samples
NA			

Field ID	Analyte	New RL	Qualification
NA			

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, several LCS recoveries exceeded the evaluation criteria. The table below presents the LCS recoveries outside evaluation criteria.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VOE1304L/C	1,2,4-Trichlorobenzene	162/161/1	75-135/20
VOE1304L/C	2-Butanone	79/99/23	50-163/20
VOE1304L/C	Acetone	118/75/45	43-165/20
VOE1304L/C	Chloromethane	72/69/4	75-125/20
SV006WL/C	2-Nitroaniline	123/129/5	50-125/20
	3-Nitroaniline	123/134/9	51-125/20
	4-Nitrophenol	138/148/7	25-131/20
	Di-n-octyl phthalate	120/129/7	38-127/20
	Hexachlorocyclopentadiene	32/38/16	41-125/20

Field ID	Analyte	Qualification
DP23-15DL	Chloromethane	UJ
DP23-08DL	Chloromethane	UJ
DP24-55DL	Chloromethane	UJ
DP24-45DL	Chloromethane	UJ
DP24-35DL	Chloromethane	UJ
DP24-25DL	Chloromethane	UJ
DP24-15	Chloromethane	UJ
DUP1-DL	Chloromethane	UJ
DUP-2DL	Chloromethane	UJ
DP23-30	Chloromethane	UJ
DP23-30DL	Chloromethane	UJ
DP23-15	Hexachlorocyclopentadiene	UJ

Field ID	Analyte	Qualification
DP23-08	Hexachlorocyclopentadiene	UJ
DP24-55	Hexachlorocyclopentadiene	UJ
DP24-45	Hexachlorocyclopentadiene	UJ
DP24-35	Hexachlorocyclopentadiene	UJ
DP24-25	Hexachlorocyclopentadiene	UJ
DP24-15	Hexachlorocyclopentadiene	UJ
DP24-08	Hexachlorocyclopentadiene	UJ
DP23-30	Hexachlorocyclopentadiene	UJ
DUP1	Hexachlorocyclopentadiene	UJ
DUP2	Hexachlorocyclopentadiene	UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

NA

Field ID	Surrogate	Recovery	Criteria	Action
NA				

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

No

*Were MS/MSD recoveries within evaluation criteria?*

NA

MS/MSD ID	Analyte	MS/MSD Recovery	MS/MSD Criteria
NA			

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99E072

Reviewer: Craig Johnson

Date Reviewed: 6/3/99

Sample Identification #
DP53-40

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated LCS recoveries for several analytes exceeded evaluation criteria; however, since the associated compounds were reported as nondetect, no action was necessary. This issue is further addressed in the LCS section below. No additional problems were noted in the narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

No.

Blank ID	Analyte	Conc.	Assoc. Samples
NA			

Field ID	Analyte	New RL	Qualification
NA			

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, several LCS recoveries exceeded the evaluation criteria. The table below presents the LCS recoveries for samples which were reported as detect. All other analytes are omitted since the high LCS recoveries indicate a high bias and the associated data were reported as nondetect.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VOE1702L/C	PCE	131	71-125

Field ID	Analyte	Qualification
DP53-40	PCE	J

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action
NA				

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

No

*Were MS/MSD recoveries within evaluation criteria?*

NA

MS/MSD ID	Analyte	MS/MSD Recovery	MS/MSD Criteria
NA			

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99E072

Reviewer: Craig Johnson

Date Reviewed: 6/3/99

Sample Identification #
DP54-30

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated LCS recoveries for many analytes exceeded evaluation criteria; however, since the associated compounds were reported as nondetect, no action was necessary. This issue is further addressed in the LCS section below. No additional problems were noted in the narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

4.

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

No.

Blank ID	Analyte	Conc.	Assoc. Samples
NA			

Field ID	Analyte	New RL	Qualification
NA			

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, several LCS recoveries exceeded the evaluation criteria. The table below presents the LCS recoveries for samples which were reported as detect. All other analytes are omitted since the high LCS recoveries indicate a high bias and the associated data were reported as nondetect.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VOE1702L/C	PCE	131	71-125

Field ID	Analyte	Qualification
DP54-30	PCE	J

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action
NA				

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

No

*Were MS/MSD recoveries within evaluation criteria?*

NA

MS/MSD ID	Analyte	MS/MSD Recovery	MS/MSD Criteria
NA			

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Yes, due to elevated levels of target compounds. 25x and 250x dilutions were completed and reported.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99E103

Reviewer: Craig Johnson

Date Reviewed: 6/3/99

Sample Identification #
DP35-08

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated LCS recoveries for two analytes exceeded evaluation criteria; however, since the associated compounds were reported as nondetect, no action was necessary. This issue is further addressed in the LCS section below. No additional problems were noted in the narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

No.

Blank ID	Analyte	Conc.	Assoc. Samples
NA			

Field ID	Analyte	New RL	Qualification
NA			

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, LCS recoveries for two analytes exceeded the evaluation criteria. The table below presents the LCS recoveries for samples which were reported as detect. All other analytes are omitted since the high LCS recoveries indicate a high bias and the associated data were reported as nondetect.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VOE1802L/C	Bromoform	130/128	75-125
	Dibromochloromethane	133/134	73-125

Field ID	Analyte	Qualification

Associated data were reported as nondetect, therefore no qualification of data was required.

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action
NA				

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

No

*Were MS/MSD recoveries within evaluation criteria?*

NA

MS/MSD ID	Analyte	MS/MSD Recovery	MS/MSD Criteria
NA			

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99C153

Reviewer: Craig Johnson

Date Reviewed: 6/1/99

Sample Identification #	Sample Identification #
WCG-1I-S2	WC2-EI-S6
WCG-1I-S9	
WC2-3I-S2	
WC2-3I-S13	
WC2-3I-S12	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated duplicate recoveries were outside evaluation criteria. This is addressed in the duplicate section below. No additional problems were noted in the case narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

No.

Blank ID	Analyte	Conc.	Assoc. Samples
NA			

Field ID	Analyte	New RL	Qualification
NA			

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
NA			

Field ID	Analyte	Qualification
NA		

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Not applicable for these analyses.

Field ID	Surrogate	Recovery	Criteria	Action
NA				

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

Yes.

MS/MSD ID	Analyte	MS/MSD Recovery	MS Criteria	MS RPD	RPD Criteria

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

No, laboratory duplicate results for CEC for sample WCG-1I-S2 were outside evaluation criteria CEC results for sample WCG-1I-S2 were qualified as estimated J.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 990555

Reviewer: Craig Johnson

Date Reviewed: 6/29/99

Sample Identification #	VOCs	PCBs	PAH	Metals	Wet Chem
SDTA006A	X	X	X	X	X
SDTA006B	X	X	X	X	X
SDTA007A	X	X	X	X	X
SDTA007B	X	X	X	X	X
SDTA001A					X
SDTA003A					X
SDTA005A					X
SDTD001A					X
Trip Blank 5-13-99					

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated outlying LCS and MS/MSD recoveries. These issues are address in the appropriate section below. In addition, the narrative indicated the internal standard 1,4-dichlorobenzene for sample SDTA006B were outside criteria. The sample was re-analyzed with similar results. Since no data were quantified using this IS and qualified due to outlying surrogate recoveries, no additional qualification of data was required.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Concentration	Assoc. Samples
VBLK01	MeCl <sub>2</sub>	10 µg/L	5-18-99
VBLK02	MeCl <sub>2</sub>	10 µg/L	5-19-99
Trip Blank 5-13-99	MeCl <sub>2</sub>	5 µg/L	All in SDG
VBLK01	MeCl <sub>2</sub>	5 µg/L	All in SDG
T04587	Aluminum	9.019	All in SDG
T04587	Antimony	0.189	All in SDG
T04587	Beryllium	-0.032	All in SDG
T04587	Cadmium	0.026	All in SDG
T04587	Calcium	9.430	All in SDG
T04587	Vanadium	0.384	All in SDG
T04587	Zinc	-0.242	All in SDG
E04587-simul	Lead	1.155	See below
E04587-simul	Mercury	0.200	See below
E04587-simul	Nickel	2.732	See below

Field ID	Analyte	Qualification
SDTA006A	MeCl <sub>2</sub>	46U
SDTA007A	MeCl <sub>2</sub>	77U
SDTA007B	MeCl <sub>2</sub>	16U
SDTA006B	Mercury	0.16U
STDA007B	Mercury	0.12U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VL905183	Acetone	52	65-135
VL905183	PCE	61	65-135
VL905193	Acetone	52	65-135
VL905193	PCE	62	65-135
VD905193	Acetone	53	65-135
T0487	Aluminum	67.7	75-125
T04587	Iron	72.4	75-125

Qualify aluminum and iron results for samples SDTA006A, SDTA006B, SDTA007A, and SDTA007B as J.

Field ID	Analyte	Qualification
SDTA006A	Acetone PCE	J/UJ J/UJ
SDTA006B	Acetone PCE	J/UJ J/UJ
SDTA007A	Acetone PCE	J/UJ J/UJ
SDTA007B	Acetone PCE	J/UJ J/UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes

Field ID	Analyte	Recovery	Criteria	Action
NA				

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No, for VOCs batch MS/MSD recoveries exceeded evaluation criteria. The outliers (acetone and PCE) are not reported since no qualification of data was required. For PAHs, most MS/MSD recoveries were outside evaluation criteria. While organic data is not normally qualified using MS/MSD data alone, since most recoveries were outside evaluation criteria, all PAH results for the spiked sample, SDTA007B were qualified as estimated **J/UJ**.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
SDTA006A	Calcium	64.7	75-125/25

Qualify calcium results for samples SDTA006A, SDTA006B, SDTA007A, and SDTA007B as J.

### Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

No, selenium and thallium RPDs were outside evaluation criteria. Selenium and thallium results for samples SDTA006A, SDTA006B, SDTA007A, and SDTA007B were qualified as J.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

??.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### 11.0 Additional Qualifications

*Were additional qualifications applied?*

No.

## Stratford Army Engine Plant Data Review

**Laboratory Work Group(s):** 990563

**Reviewer:** Craig Johnson

**Date Reviewed:** 6/29/99

Sample Identification #	VOCs	PCBs	PAH	Metals	Wet Chem
SDTB006A	X	X	X	X	X
SDTB006B	X	X	X	X	X
SDTB007A	X	X	X	X	X
SDTB007B	X	X	X	X	X
SDTC006A	X	X	X	X	X
SDTC006B	X	X	X	X	X
SDTC007A	X	X	X	X	X
SDTC007B	X	X	X	X	X
SDTD006A	X	X	X	X	X
SDTD006B	X	X	X	X	X
SDTD007A	X	X	X	X	X
SDTD007B	X	X	X	X	X
SDTD003A	X	X	X	X	X
SDTD005A	X	X	X	X	X
Trip Blank 5-14-99B	X				X
Trip Blank 5-14-99B	X				X

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated outlying LCS, surrogate and MS/MSD recoveries. These issues are address in the appropriate section below. In addition, the narrative indicated the internal standards for sample SDTC007B were outside criteria. The sample was re-analyzed and all IS were within criteria. The re-analyzed data will be used with no qualifications. The narrative also indicated IS for the following samples had IS recoveries outside criteria: SDTB007B, SDTC006B, SDTD006A, SDTD006B, and SDTD007B. VOC results for these samples were qualified as J/UJ.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Concentration	Assoc. Samples
VBLK01	MeCl <sub>2</sub>	9 µg/L	5-21-99
VBLK02	MeCl <sub>2</sub>	11 µg/L	5-24-99
VBLK03	MeCl <sub>2</sub>	2 µg/L	5-27-99
Trip Blank 5-14-99A	MeCl <sub>2</sub>	5 µg/L	5-14-99
Trip blank 5-14-99B	MeCl <sub>2</sub>	4 µg/L	5-14-99
T04587	Aluminum	9.019	All in SDG
T04587	Antimony	0.189	All in SDG
T04587	Beryllium	-0.032	All in SDG
T04587	Cadmium	0.026	All in SDG
T04587	Calcium	9.430	All in SDG
T04587	Vanadium	0.384	All in SDG
T04587	Zinc	-0.242	All in SDG
E04587	Lead	1.155	All in SDG
E04587	Mercury	0.200	All in SDG
E04587	Nickel	2.732	All in SDG
E04587	Zinc	24.354	All in SDG

Field ID	Analyte	Qualification
E04633	Mercury	0.10U
E04640	Mercury	0.17U

Qualify all MeCl<sub>2</sub> results for SDG as U and raise RL to detected value.

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VL905215	Acetone	64	65-135
VL905242	Acetone	31	65-135
VL905242	PCE	62	65-135
T04587	Aluminum	67.7	75-125
T04587	Iron	72.4	75-125

Field ID	Analyte	Qualification
See below		

Qualify all acetone, PCE, iron and aluminum results for SDG as J/UJ.

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Analyte	Recovery	Criteria	Action
SDTD006B	BFB	1153	74-121	Qual detects (acetone, carbon disulfide) as J
SDTD007A	TCX	28	30-150	Qual PCB data for sample as J/UJ
	DCB	29	30-150	
SDTD006B	4,4-DOB	22	25-150	Qual PAH results as J/UJ for sample
	BEP	319	30-150	
SDTD006A	4,4-DOB	25	25-150	Qual PAH results as J/UJ for sample

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No, for VOCs batch MS/MSD recoveries exceeded evaluation criteria.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
SDTA006A	Calcium	64.7	75-125

Qualify Calcium result for sample SDTA006A as J.

### Lab Duplicate Results

*Were lab duplicate samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

Yes.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

??.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 990572

Reviewer: Craig Johnson

Date Reviewed: 6/22/99

Sample Identification #	VOCs	PAHs	PCBs	Metals/ Cr6+	TOC, Moist, Grain Size
SDTG001A	X	X	X	X	X
SDTG011A	X	X	X	X	X
SDTG002A	X	X	X	X	X
SDTH001A	X	X	X	X	X
SDTH011A	X	X	X	X	X
SDTH002A	X	X	X	X	X
SDTE001A					X
SDTE003A					X
SDT005A					X
TRIP BLANK	X				
SDTG003A	X	X	X	X	X

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated outlying MS/MSD, surrogate and internal standard recoveries. MS/MSD and surrogate recovery issues are addressed in the appropriate sections below. Outlying internal standard (IS) recoveries to samples SDTG001A, SDTG002A and SDTH001A for VOC analysis. The following table identifies outlying IS recoveries and actions taken:

Field ID	Internal Std	RT of IS	Action
SDTG001A	1,4-Dichlorobenzene-d <sub>4</sub>	26.51	None, data prev. qual. Due to surrogate
SDTG002A	1,4-Dichlorobenzene-d <sub>4</sub>	26.51	None, data prev. qual. Due to surrogate
SDTG001ARE	1,4-Dichlorobenzene-d <sub>4</sub>	26.51	None, data prev. qual. Due to surrogate
SDTH001A	1,4-Dichlorobenzene-d <sub>4</sub>	26.51	None, no data were detected/quantified using this IS

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VBLK01	Methylene chloride	2 µg/kg	5-25-99
VBLK02	Methylene chloride	2 µg/kg	5-26-99
Trip Blank 5-17-99	Methylene chloride	2 µg/kg	All samples in SDG
Metals Prep Blank	Cadmium	0.045 mg/kg	All samples in SDG
Metals Prep Blank	Cobalt	0.266 mg/kg	All samples in SDG
Metals Prep Blank	Copper	-0.104 mg/kg	All samples in SDG
Metals Prep Blank	Vanadium	0.623 mg/kg	All samples in SDG
Metals Prep Blank	Mercury	0.1 mg/kg	All samples in SDG
Metals Method Blk	Copper	9.94 µg/L	All samples in SDG
Metals Method Blk	Lead	35.8 µg/L	All samples in SDG
Metals Method Blk	Nickel	7.615 µg/L	All samples in SDG
Metals Method Blk	Zinc	111.5 µg/L	All samples in SDG
MBLK	TOC	2140 mg/kg	All samples in SDG

Field ID	Analyte	New RL	Qualification
SDTG001A	Methylene chloride	See Qual	5U
SDTG001ARE	Methylene chloride	See Qual	5U
SDTG011A	Methylene chloride	See Qual	4U
SDTG002A	Methylene chloride	See Qual	4U
SDTG002ARE	Methylene chloride	See Qual	4U
SDTH001A	Methylene chloride	See Qual	4U
SDTH011A	Methylene chloride	See Qual	4U
SDTH002A	Methylene chloride	See Qual	4U
SDTG003A	Methylene chloride	See Qual	3U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
T04718	Aluminum	311.8	75-125
T04718	Iron	239	75-125
T04718	Selenium	70.9	75-125

Field ID	Analyte	Qualification

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
SDTG001A	BFB	68	74-121	Qual VOC results for sample as J/UJ
SDTG001AMSD	BFB	73	74-121	No qualification required
SDTG001ARE	BFB	55	74-121	Qual VOC results for sample as J/UJ
SDTG002A	BFB	65	74-121	Qual VOC results for sample as J/UJ
SDTG002ARE	BFB	73	74-121	Qual VOC results for sample as J/UJ
SWMB001HMS	DBF	82	86-118	None required since the sample was a QC sample (MSD)
	Toluend-d <sub>8</sub>	83	88-110	
	BFB	76	86-115	
SDTH001A	Benzo(e)pyrene	238	30-150	Qual detects for sample as J

Field ID	Surrogate	Recovery	Criteria	Action
SDTH011A	p-Terphenyl	661	30-150	Qual detects for sample as J
	Benzo(e)pyrene	392	30-150	
SDTH002A	Benzo(e)pyrene	167	30-150	Qual detects sample as J

P-ter4,4-DOB was reported as a zero percent recovery for all samples using the secondary column. This was due to the fact DOB does not fluoresce and is therefore not detected. The laboratory used 2 additional surrogate compounds which had acceptable recoveries with the exceptions noted above.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
SDTG001A	Carbon disulfide	62/39/44	65-135/20
SDTG001A	2-Butanone	136/121/12	65-135/20
SDTG001A	Styrene	69/61/12	65-135/20
SDTG003A	Carbon disulfide	64/66/3	65-135/20
T04718	Aluminum	311.8	75-125
T04718	Iron	239	75-125
T04718	Selenium	70.9	75-125
T04722S	Aluminum	275	75-125
T04722S	Chromium	-836.8	75-125
T04722S	Copper	-107.3	75-125
T04722S	Iron	334.5	75-125

MS/MSD results for VOCs associated with the trip blank sample had several MS/MSD RPDs outside criteria. Since the MS and MSD recoveries were within criteria and the LCS recoveries were within criteria, no qualification of data was required. In addition, MS recoveries for PAHs had several recoveries outside evaluation criteria. No qualification of data was required since the LCS recoveries were within criteria.

Field ID	Analyte	Qualification
SDTG001A	Aluminum	J/UJ
	Iron	J/UJ
	Selenium	J/UJ
SDTH001AS	Aluminum	J/UJ
	Chromium	J/UJ
	Copper	J/UJ
	Iron	J/UJ

### Lab Duplicate Results

*Were lab duplicate samples analyzed as part of this SDG?*

Yes, all within criteria except mercury for sample SDTG001AD. Mercury for this sample was qualified as estimated J.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 990578

Reviewer: Craig Johnson

Date Reviewed: 6/24/99

Sample Identification #	VOCs	PAHs	Metals	General Chemistry
SWUS001L	X	X	X	X
SWUS002L	X	X	X	X
SWUS003L	X	X	X	X
SWMB003L	X	X	X	X
SWMB004L	X	X	X	X
TRIP BLANK 5-18-99	X			
SWUS001H	X	X	X	X
SWUS002H	X	X	X	X
SWUS003H	X	X	X	X
SWMB003H	X	X	X	X
SWMB004H	X	X	X	X

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated the LCS mixture for VOCs did not include ketones and carbon disulfide due to a laboratory error. Since these compounds were not compounds of concern and other QC parameters were within criteria for VOCs, no action was required. In addition, the laboratory noted MS/MSD recoveries were outside evaluation criteria. This issue is discussed in the MS/MSD section below.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Concentration	Assoc. Samples
Trip Blank 5-18-9	Acetone	5 ug/L	All in SDG
VBLK01	MeCl <sub>2</sub>	4 ug/L	All in SDG
T04750S	Barium	10.695	All in SDG
T04750S	Beryllium	0.478	All in SDG
T04750S	Cadmium	1.27	All in SDG
T04750S	Calcium	102.755	All in SDG
T04750S	Chromium	0.7	All in SDG
T04750S	Copper	2.9	All in SDG
T04750S	Magnesium	72.8	All in SDG
T04750S	Nickel	2.847	All in SDG
T04750S	Sodium	63.073	All in SDG
T04750S	Vanadium	7.68	All in SDG

Qualify barium, chromium, copper, nickel and vanadium as U at the reporting limit for all samples in this SDG as well as those mentioned below.

Field ID	Analyte	Qualification
SWUS003L	Acetone	3U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
T04750S	Magnesium	234	75-125-
T04750S	Potassium	201	75-125
T04750S	Sodium	410	75-125

Field ID	Analyte	Qualification
See below		

Qualify magnesium, potassium, and sodium detects J for all samples in the SDG.

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No; some of the recoveries were outside evaluation criteria. However, the MS/MSD sample used was not a SAEP sample and therefore, no qualification of data was required.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria

### Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes, all within criteria.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### **Field Duplicate Results**

*Were field duplicate samples collected as part of this SDG?*

No.

### **Sample Dilutions**

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### **Additional Qualifications**

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 990580

Reviewer: Craig Johnson

Date Reviewed: 6/28/99

Sample Identification #	VOCs	PCBs	PAH	Metals	Wet Chem
SDUS001A	X	X	X	X	X
SDUS002A	X	X	X	X	X
SDUS003A	X	X	X	X	X
SDMB003A	X	X	X	X	X
SDMB004A	X	X	X	X	X
SDTG004A	X	X	X	X	X
Trip Blank 5-18-99	X				

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated outlying MS/MSD and surrogate recoveries. These issues are addressed below. The narrative also indicated some ketones and carbon disulfide were not included in the LCS and MS/MSD spiking solutions due to an analyst error. Since these compounds are not compounds of concern and the other QC parameters were within criteria, no qualification of data was required. In addition, the narrative indicated the internal standards for sample SDMB003A were outside criteria. The sample was re-analyzed with similar results. Since no data were quantified using this IS and qualified due to outlying surrogate recoveries, no additional qualification of data was required.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Concentration	Assoc. Samples
VBLK01	MeCl <sub>2</sub>	2 µg/L	All in SDG
Trip Blank	Acetone	4 µg/L	All in SDG
VBLK01 - water	MeCl <sub>2</sub>	4 µg/L	All in SDG
T04718 Blk	Cadmium	0.045 mg/kg	All in SDG
T04718 Blk	Cobalt	0.266 mg/kg	All in SDG
T04718 Blk	Copper	-0.104 mg/kg	All in SDG
T04718 Blk	Vanadium	0.623 mg/kg	All in SDG
E04718 (simul)	Copper	9.94 µg/L	All in SDG
E04718 (simul)	Lead	35.7 µg/L	All in SDG
E04718 (simul)	Nickel	7.615 µg/L	All in SDG
E04718 (simul)	Zinc	111.5 µg/L	All in SDG
990580 TOC	TOC	2140 mg/kg	All in SDG

Acetone results for SDMB003A and SDMB003ARE were reported at concentrations greater than 10x the blank concentration. Since the results were similar and above 10x, no qualification of data was chosen based on professional judgment. Metals results for simultaneous extraction were greater than 5x the blank conc.; therefore, no qual. required.

Field ID	Analyte	Qualification
SDUS001A	MeCl <sub>2</sub>	3U
SDUS002A	MeCl <sub>2</sub>	2U
SDUS003A	MeCl <sub>2</sub>	3U
SDMB003A	MeCl <sub>2</sub>	6U
SDMB003RE	MeCl <sub>2</sub>	7U
SDMB004A	MeCl <sub>2</sub>	3U
SDTG004A	MeCl <sub>2</sub>	3U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
T04718	Aluminum	70.2	75-125
T04718	Iron	59.5	75-125

Qual aluminum and iron data for SDG as estimated J. (see below)

Field ID	Analyte	Qualification
SDUS001A	Al, Fe	J
SDUS002A	Al, Fe	J
SDUS003A	Al, Fe	J
SDMB003A	Al, Fe	J
SDMB003RE	Al, Fe	J
SDMB004A	Al, Fe	J
SDTG004A	Al, Fe	J

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No, see the table below:

Field ID	Analyte	Recovery	Criteria	Action
SDMB003	BFB	69	74-121	Qual all results for sample as J/UJ
SDMB003RE	DBFM	72	80-120	Qual all results for sample as J/UJ
	Touene-d8	71	81-117	
	BFB	62	74-121	
SDMB004A	BEP	202	30-150	Qual detects as J
SDTG004A	p-Terphenyl	27	30-150	Qual results as J/UJ

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No, MS/MSD recoveries were outside criteria for organic analyses. Since no data are qualified using MS/MSD results alone, no qualification was required unless other QC parameters did not meet evaluation criteria. MS/MSD recoveries for inorganic parameters outside evaluation are presented below.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
STDG001AS	Chromium	65.6	75-125
SDTH001A	Nickel	28.7	75-125
SDTH001A	Zinc	71	75-125

No qual. for metals since not a samples in this SDG.

### Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

Yes.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

??.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 990591

Reviewer: Craig Johnson

Date Reviewed: 8-3-99

Sample Identification #	VOCs	PCBs	PAH	Metals	Dissolved Metals	Wet Chem
SD08001A	X	X	X	X		X
SD08002A	X	X	X	X		X
SD08003A	X	X	X	X		X
SW08001L	X	X	X	X	X	
SW08002L	X	X	X	X	X	
SW08003L	X	X	X	X	X	
SW08001H	X	X	X	X	X	
SW08002H	X	X	X	X	X	
SW08003H	X	X	X	X	X	
Trip Blank 5-19-99	X					

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated outlying LCS, surrogate and MS/MSD recoveries. These issues are address in the appropriate section below. In addition, the narrative indicated the IS for the following samples had IS recoveries outside criteria: SD08001A and SD08002A. VOC results for these samples were qualified as **J/UJ**.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes with the exception of samples SD08002A, SD08003A, SW08002L and SW08003L were received at the laboratory just outside the 24 hour holding time. The

samples were immediately analyzed after receipt and unpacking, therefore no qualification of the data was required.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Concentration	Assoc. Samples
VBLK01	MeCl <sub>2</sub>	2 µg/L	5-25-99
VBLK02	MeCl <sub>2</sub>	2 µg/L	5-26-99
VBLK03	MeCl <sub>2</sub>	2 µg/L	5-27-99
Trip Blank 5-14-99A	MeCl <sub>2</sub>	5 µg/L	5-14-99
Trip blank 5-14-99B	MeCl <sub>2</sub>	4 µg/L	5-14-99
T04838	Cadmium	0.127 mg/kg	All in SDG
T04838	Calcium	-7.873 mg/kg	All in SDG
T04838	Cobalt	-0.383 mg/kg	All in SDG
T04838	Manganese	-0.83 mg/kg	All in SDG
T04838	Nickel	0.105 mg/kg	All in SDG
T04838	Sodium	9.972 mg/kg	All in SDG
T04838	Vanadium	0.41 mg/kg	All in SDG
T04838	Zinc	-0.271 mg/kg	All in SDG
T04841	Cadmium	0.597 µg/L	All in SDG
T04841	Chromium	0.7 µg/L	All in SDG
T04841	Cobalt	-4.415 µg/L	All in SDG
T04841	Vanadium	3.838 µg/L	All in SDG
T04841	Zinc	-4.834 µg/L	All in SDG

Field ID	Analyte	Qualification
SD08001A	Methylene Chloride	8U
SD08001ARE	Methylene Chloride	8U
SD08001DL	Methylene Chloride	17U
SD08002A	Methylene Chloride	7U
SD08002ARE	Methylene Chloride	6U
SD08003A	Methylene Chloride	5U
SD08003ARE	Methylene Chloride	5U
SDTG001A	Methylene Chloride	5U
SW08001L (dissolved)	Vanadium	5.2 U
SW08002L (dissolved)	Chromium	1.3 U
	Vanadium	5.1 U
	Zinc	20.1 U
SW08003L (dissolved)	Vanadium	6.2 U
	Zinc	3.9 U
SW08001H (dissolved)	Chromium	3.4 U
	Vanadium	5.8 U
	Zinc	4.2 U

Field ID	Analyte	Qualification
SW08002H (dissolved)	Chromium	1.5 U
	Vanadium	6.3 U
SW08003H (dissolved)	Vanadium	6.9 U
SW08001L	Cadmium	0.43 U
	Vanadium	7.1 U
SW08002L	Vanadium	6.7 U
SW08003L	Vanadium	6.5 U
	Zinc	3.6 U
SW08001H	Cadmium	0.4 U
	Vanadium	8.7 U
	Zinc	20.5 U
SW08002H	Cadmium	0.31 U
	Vanadium	8.1 U
	Zinc	9.5 U
SW08003H	Vanadium	7.3 U

All cadmium, calcium, cobalt, manganese, nickel, sodium, vanadium and zinc data for associated sediment samples were reported with concentrations greater than 5X the prep blank contamination, therefore no qualification of the data was required.

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes.

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Analyte	Recovery	Criteria	Action
SD08001A	BFB	65	74-121	Qual VOC data for sample as J/UJ
SD08002A	BFB	71	74-121	Qual VOC data for sample as J/UJ
SD08003A	BFB	73	74-121	Qual VOC data for sample as J/UJ
SD08003A				Qual detected PAH data for sample as J/UJ
SD08003ARE				None, surrogates diluted out
SW08002L	4,4-DOB	20	25-150	Qual all PAH data as J/UJ
	p-Terphenyl	20	30-150	
	Benzo(e)pyrene	18	30-150	
SW08001L	DCBP	29/27	30-150	Qual all PCB data as J/UJ
SW08001H	DCBP	20/18	30-150	Qual all PCB data as J/UJ
SW08002H	DCBP	16/15	30-150	Qual all PCB data as J/UJ

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No, carbon disulfide, 2-butanone and styrene recoveries exceeded evaluation criteria for the sediment VOC data. Chloromethane and total xylenes for surface water data were outside evaluation criteria. All PAH data were outside evaluation criteria for the batch MS/MSD. Per Functional Guidelines, organic data is not qualified based on MS/MSD data alone.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
SD08001A	Antimony	29.9	75-125

Qualify antimony data for sample SD08001A estimated (J) based on MS recoveries.

## Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

Yes

## Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

??.

## Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor
SD08003A	PAHs	ALL	50

### Additional Qualifications

*Were additional qualifications applied?*

No.

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 990595

Reviewer: John Keith

Date Reviewed:

Sample Identification #	VOCs	PCBs	PAH	Metals	Grain Size
SWMB001R	X	X	X		
SWMB002R	X	X	X		
SWMB001L	X	X	X		
SWMB002L	X	X	X		
SWMB001H	X	X	X		
SWMB011H	X	X	X		
SWMB002H	X	X	X		
TRIP BLANK	X				
SDMB001A	X	X	X		X
SDMB002A	X	X	X		X

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

Review of the COCs indicated that two sediment samples were incorrectly identified by the laboratory as summarized below:

Field ID	Laboratory ID
SDMB001A	SWMB001A
SDMB002A	SWMB002A

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Concentration	Assoc. Samples
Trip Blank 05-21-99	MeCl <sub>2</sub>	2 µg/L	All aqueous samples in SDG
VBLK01	Acetone	6 µg/L	All aqueous samples in SDG
	MeCl <sub>2</sub>	4 µg/L	
VBLK01	MeCl <sub>2</sub>	2 µg/L	All solid samples in SDG
Prep Blank aqueous samples	Cadmium	2.037 µg/L	All aqueous samples in SDG
	Cobalt	-3.95	
	Mercury	0.10	
	Nickel	0.90	
	Sodium	179.965	
	Vanadium	4.516	
	Zinc	-3.124	
Prep Blank soil samples	Cadmium	0.127 mg/kg	All soils in SDG
	Calcium	-7.87	
	Cobalt	-0.383	
	Manganese	-0.83	
	Nickel	0.105	
	Sodium	9.972	
	Vanadium	0.410	
	Zinc	-0.271	

Data qualified based on blank contamination is summarized below:

Field ID	Analyte	Qualification
SWMB001R	MeCl <sub>2</sub>	1U
	Cadmium	0.26U
	Sodium	413U
	Vanadium	3.8U
SWMB002R	MeCl <sub>2</sub>	1U
	Cadmium	0.43U
	Nickel	1.3U
	Sodium	628U
	Vanadium	3.9U
SWMB001L	MeCl <sub>2</sub>	1U
	Nickel	3.8U
	Vanadium	6.5U
	Nickel-dissolved	3.0U
	Vanadium-dissolved	6.1U
SWMB002L	MeCl <sub>2</sub>	2U
	Nickel	2.4U
	Vanadium	6.2U
	Nickel-dissolved	2.8U
	Vanadium-dissolved	6.4U

Field ID	Analyte	Qualification
SWMB001H	MeCl <sub>2</sub>	1U
	Nickel	2.9U
	Vanadium	6.1U
	Nickel-dissolved	3.0U
	Vanadium-dissolved	5.5U
SWMB011H	MeCl <sub>2</sub>	1U
	Cadmium	0.24U
	Nickel	3.0U
	Vanadium	6.4U
	Nickel-dissolved	3.2U
SWMB002H	MeCl <sub>2</sub>	1U
	Acetone	7U
	Nickel	3.7U
	Vanadium	6.0U
	Zinc	3.3U
SDMB001A	Nickel-dissolved	3.1U
	Vanadium-dissolved	5.3U
SDMB002A	MeCl <sub>2</sub>	3U

Soil sample concentrations of cadmium, calcium, cobalt, manganese, nickel, sodium, vanadium, and zinc were greater than 5x prep blank concentrations, therefore no qualification of the soil data were required.

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
NA			

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No

Field ID	Analyte	Recovery	Criteria	Action
SDMB001AD	p-Terphenyl	17	30-150	None, samples diluted
	Benzo(e)pyrene	28	30-150	
SDMB002AD	p-Terphenyl	9	30-150	None, samples diluted
	Benzo(e)pyrene	12	30-150	

All other surrogate recoveries were within evaluation criteria, therefore no qualification of the data based on surrogate recoveries was required.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No, aqueous VOC MS/MSD recoveries were within criteria, but all RPDs were outside the evaluation criteria. Since the MS/MSD recoveries and the LCS recoveries were within criteria, and FG indicates that organic data should not be qualified on MS data alone, no qualification of the aqueous VOC data was done. The soil MS recovery for carbon disulfide (64%R) was outside evaluation criteria (65-135%R). Since the MSD recovery and the LCS recoveries were within criteria, and FG indicates that organic data should not be qualified on MS data alone, no qualification of the soil VOC data was required.

MS/MSD ID	Analyte	MS Recovery	MS Criteria
T04838S	Antimony	29.9	75-125
	Chromium	-93.5	75-125
	Copper	8.0	75-125
	Iron	-255.1	75-125

No qualification of the soil data was required based on MS recoveries since the sample used for the MS was not an URSGWC sample in this SDG. Also, the chromium, copper and iron concentrations in the sample were greater than five times (5X) the spike concentration.

All other MS/MSD recoveries and duplicate RPDs were within criteria, therefore no qualification of data based on matrix spikes was required.

### Lab Duplicate Results

*Were lab duplicate samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

Yes.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

????

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

## Stratford Army Engine Plant Data Review

**Laboratory Work Group(s): 990604**

**Reviewer: Craig Johnson**

**Date Reviewed: 6/24/99**

Sample Identification #	PCBs	Metals (Total and Diss.)
SF1TF01	X	X
SF1TF02	X	X
FF1TF01	X	X
FF1TF02	X	X
FF2TD01	X	X
FF2TD02	X	X
FF2TD03	X	X
FF2TD04	X	X
FF1TD01	X	X
FF1MB01	X	X
FF1MB03	X	X
FF2MB01	X	X
FF2MB02	X	X
FF1MB04	X	X
FF1US011	X	X
FF1US012	X	X
FF1US013	X	X
FF1US014	X	X
FF1US015	X	X
FF2US01	X	X
FF2US02	X	X
FF2US03	X	X
FF2US04	X	X
FF1MB02	X	X
SF1TF03	X	X
SF1TF031	X	X
SF1TF032	X	X
SF1TF033	X	X
SF1TF034	X	X
SF1US01	X	X
SF1US011	X	X
SF1US012	X	X
SF1US013	X	X
SF1US014	X	X
SF1MB01	X	X
SF1MB012	X	X
SF1MB013	X	X

Sample Identification #	PCBs	Metals (Total and Diss.)
SF1MB014	X	X
SF1MB015	X	X

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated surrogate recoveries were outside evaluation criteria. This issue is address in the surrogate section below. No additional problems were noted in the laboratory case narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Concentration	Assoc. Samples
T04943	Cobalt(total)	-0.926 mg/kg	All in SDG
T04962	Cobalt (total)	-0.972 mg/kg	All in SDG

Field ID	Analyte	Qualification
NA		

Cobalt data were reported as nondetect, therefore, no qualification of data was required.

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
LCS – total	Cobalt	27.5	75-125
LCS - total	Lead	185.7	75-125

Field ID	Analyte	Qualification
See below		

Qualify all total cobalt results in SDG (T04945-61, 66) as UJ (all Co results reported as nondetect). Qualify all detection's of total lead as J.

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No, the surrogate recovery for a PCB blank had surrogate recoveries below criteria. Since this was a QC sample, no qualification of data was required. In addition, one of the surrogates for an investigative sample was outside criteria on the secondary column. Since the surrogate recoveries were within criteria on the primary column, no qualification of data was required.

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
TY04945S	Calcium	-62.8	75-125

Qualify all calcium results in SDG as estimated.

### Lab Duplicate Results

*Were lab duplicate samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

No.

Analyte	%D
Aluminum	26.6
Arsenic	83.8
Lead	61.3
Nickel	76.5
Selenium	69.7
Silver	200.0

Qualify aluminum, arsenic, lead, nickel, selenium, and silver results for SDG as J/UJ.  
(SDG is samples with laboratory ID T04962-80, excluding 66).

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

??.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99BR094add

Reviewer: Craig Johnson

Date Reviewed: 6/24/99

Sample Identification #	Inorganic Arsenic	Monomethyl Mercury
SW08001L	X	X
SW08002L	X	X
SW08003L	X	X
SW08001H	X	X
SW08002H	X	X
SW08003H	X	X

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated samples required re-analysis due to method blank results not within evaluation criteria. According to the narrative, no additional problems were encountered.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes; however, all samples were re-analyzed and the method blank associated with the re-analysis was acceptable.

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
NA			

Field ID	Analyte	Qualification
NA		

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

NA.

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

Yes.

MS/MSD-ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
NA			

## Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes, all within criteria.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### **Field Duplicate Results**

*Were field duplicate samples collected as part of this SDG?*

No.

### **Sample Dilutions**

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor
NA			

### **Additional Qualifications**

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99L193C –

Reviewer: Craig Johnson

Date Reviewed: 7-12-99

Sample Identification #	VOCs	PAHs	PCBs	Metals/ Cr6+	TOC, Moist, Grain Size
SDTG001A	X	X	X	X	X
SDTG011A	X	X	X	X	X
SDTG002A	X	X	X	X	X
SDTH001A	X	X	X	X	X
SDTH011A	X	X	X	X	X
SDTH002A	X	X	X	X	X
SDTE001A					X
SDTE003A					X
SDT005A					X
TRIP BLANK	X				
SDTG003A	X	X	X	X	X

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated outlying MS/MSD, surrogate and internal standard recoveries. MS/MSD and surrogate recovery issues are addressed in the appropriate sections below. Outlying internal standard (IS) recoveries to samples SDTG001A, SDTG002A and SDTH001A for VOC analysis. The following table identifies outlying IS recoveries and actions taken:

Field ID	Internal Std	RT of IS	Action
SDTG001A	1,4-Dichlorobenzene-d <sub>4</sub>	26.51	None, data prev. qual. Due to surrogate
SDTG002A	1,4-Dichlorobenzene-d <sub>4</sub>	26.51	None, data prev. qual. Due to surrogate
SDTG001ARE	1,4-Dichlorobenzene-d <sub>4</sub>	26.51	None, data prev. qual. Due to surrogate
SDTH001A	1,4-Dichlorobenzene-d <sub>4</sub>	26.51	None, no data were detected/quantified using this IS

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
VBLK01	Methylene chloride	2 µg/kg	5-25-99
VBLK02	Methylene chloride	2 µg/kg	5-26-99
Trip Blank 5-17-99	Methylene chloride	2 µg/kg	All samples in SDG
Metals Prep Blank	Cadmium	0.045 mg/kg	All samples in SDG
Metals Prep Blank	Cobalt	0.266 mg/kg	All samples in SDG
Metals Prep Blank	Copper	-0.104 mg/kg	All samples in SDG
Metals Prep Blank	Vanadium	0.623 mg/kg	All samples in SDG
Metals Prep Blank	Mercury	0.1 mg/kg	All samples in SDG
Metals Method Blk	Copper	9.94 µg/L	All samples in SDG
Metals Method Blk	Lead	35.8 µg/L	All samples in SDG
Metals Method Blk	Nickel	7.615 µg/L	All samples in SDG
Metals Method Blk	Zinc	111.5 µg/l	All samples in SDG
MBLK	TOC	2140 mg/kg	All samples in SDG

Field ID	Analyte	New RL	Qualification
SDTG001A	Methylene chloride	See Qual	5U
SDTG001ARE	Methylene chloride	See Qual	5U
SDTG011A	Methylene chloride	See Qual	4U
SDTG002A	Methylene chloride	See Qual	4U
SDTG002ARE	Methylene chloride	See Qual	4U
SDTH001A	Methylene chloride	See Qual	4U
SDTH011A	Methylene chloride	See Qual	4U
SDTH002A	Methylene chloride	See Qual	4U
SDTG003A	Methylene chloride	See Qual	3U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
T04718	Aluminum	311.8	75-125
T04718	Iron	239	75-125
T04718	Selenium	70.9	75-125

Field ID	Analyte	Qualification

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
SDTG001A	BFB	68	74-121	Qual VOC results for sample as J/UJ
SDTG001AMSD	BFB	73	74-121	No qualification required
SDTG001ARE	BFB	55	74-121	Qual VOC results for sample as J/UJ
SDTG002A	BFB	65	74-121	Qual VOC results for sample as J/UJ
SDTG002ARE	BFB	73	74-121	Qual VOC results for sample as J/UJ
SWMB001HMS	DBF	82	86-118	None required since the sample was a QC sample (MSD)
	Toluend-d <sub>8</sub>	83	88-110	
	BFB	76	86-115	
SDTH001A	Benzo(e)pyrene	238	30-150	Qual detects for sample as J

Field ID	Surrogate	Recovery	Criteria	Action
SDTH011A	p-Terphenyl	661	30-150	Qual detects for sample as J
	Benzo(e)pyrene	392	30-150	
SDTH002A	Benzo(e)pyrene	167	30-150	Qual detects sample as J

P-ter4,4-DOB was reported as a zero percent recovery for all samples using the secondary column. This was due to the fact DOB does not fluoresce and is therefore not detected. The laboratory used 2 additional surrogate compounds which had acceptable recoveries with the exceptions noted above.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
SDTG001A	Carbon disulfide	62/39/44	65-135/20
SDTG001A	2-Butanone	136/121/12	65-135/20
SDTG001A	Styrene	69/61/12	65-135/20
SDTG003A	Carbon disulfide	64/66/3	65-135/20
T04718	Aluminum	311.8	75-125
T04718	Iron	239	75-125
T04718	Selenium	70.9	75-125
T04722S	Aluminum	275	75-125
T04722S	Chromium	-836.8	75-125
T04722S	Copper	-107.3	75-125
T04722S	Iron	334.5	75-125

MS/MSD results for VOCs associated with the trip blank sample had several MS/MSD RPDs outside criteria. Since the MS and MSD recoveries were within criteria and the LCS recoveries were within criteria, no qualification of data was required. In addition, MS recoveries for PAHs had several recoveries outside evaluation criteria. No qualification of data was required since the LCS recoveries were within criteria.

Field ID	Analyte	Qualification
SDTG001A	Aluminum	J/UJ
	Iron	J/UJ
	Selenium	J/UJ
SDTH001AS	Aluminum	J/UJ
	Chromium	J/UJ
	Copper	J/UJ
	Iron	J/UJ

### Lab Duplicate Results

*Were lab duplicate samples analyzed as part of this SDG?*

Yes, all within criteria except mercury for sample SDTG001AD. Mercury for this sample was qualified as estimated J.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

No.

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Groundwater Data Review

**Laboratory Work Group(s): 99G006**

**Reviewer: Craig Johnson**

**-Date Reviewed: 8-5-99**

Sample Identification #	VOCs	SVOC	PAHs	PCBs	Metals/ CN-	Cl-
WC-19S	x	x	x	x	x	x
WC-19D1	x	x	x	x	x	x
WC5-2I	x	x	x	x	x	x
WC6-1I	x	x	x	x	x	x
WC-9S	x	x	x	x	x	x
WC-9D2	x	x	x	x	x	x
PZ-11D	x	x	x	x	x	x
WC5-2S	x	x	x	x	x	x
PZ-9D	x	x	x	x	x	x
WC5-3S	x	x	x	x	x	x
TB0701	x					

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated LCS, surrogate and MS/MSD recoveries were outside evaluation criteria. These issues are addressed in the appropriate sections below. The narrative also indicated sample labeling discrepancies. The discrepancies were addressed during phone calls with URSG WC personnel. No additional problems were noted in the laboratory case narrative.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
MBLK1W	Bis(2-ethylhexyl) phthalate	4.73J	All in SDG

Field ID	Analyte	New RL	Qualification
WC-19S	Bis(2-ethylhexyl) phthalate	NA	U
WC-19D1	Bis(2-ethylhexyl) phthalate	NA	U
WC6-1I	Bis(2-ethylhexyl) phthalate	18.7	U
WC-9D2	Bis(2-ethylhexyl) phthalate	32.9	U
WC-9D2RE	Bis(2-ethylhexyl) phthalate	32.6	U
PZ-11D	Bis(2-ethylhexyl) phthalate	23.1	U
WC5-2S	Bis(2-ethylhexyl) phthalate	NA	U
PZ-9D	Bis(2-ethylhexyl) phthalate	NA	U
WC5-3S	Bis(2-ethylhexyl) phthalate	13.6	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

A. Complete the following table:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
MBLK1WL/C	4-Chloroaniline	3739/4	45-136/20
	Hexachlorocyclopentadiene	36/34/5	41-125/20
	Antimony	23.9J	80-120

Qualify 4-chloroaniline, hexachlorocyclopentadiene and antimony results for all samples in SDG as **J/UJ** as identified below:

Field ID	Analyte	Qualification
WC-19S	4-chloroaniline, HCCPD, Sb	J/UJ
WC-19D1	4-chloroaniline, HCCPD, Sb	J/UJ
WC5-2I	4-chloroaniline, HCCPD, Sb	J/UJ
WC6-1I	4-chloroaniline, HCCPD, Sb	J/UJ
WC-9S	4-chloroaniline, HCCPD, Sb	J/UJ
WC-9D2	4-chloroaniline, HCCPD, Sb	J/UJ
PZ-11D	4-chloroaniline, HCCPD, Sb	J/UJ
WC5-2S	4-chloroaniline, HCCPD, Sb	J/UJ
PZ-9D	4-chloroaniline, HCCPD, Sb	J/UJ
WC5-3S	4-chloroaniline, HCCPD, Sb	J/UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
WC-9D2	2-Fluorobiphenyl	39	43-125	None, one surrogate per fraction allowed out. Sample re-analyzed with similar res.
WC-9D2	TCMX	35/35	45-125	Qual PCB results for samples as UJ.
WC5-2S	TCMX	37/45	45-125	Qual PCB sample results as UJ.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
WC-19S	Manganese	74/90/7	80-120/20
	Sodium	66/88/8	80-120/20
WC53S	Sulfide	116	85-115

Associated results for sulfide was ND, no qualification necessary.

Field ID	Analyte	Qualification
WC-19S	Manganese	UJ/J
WC-19S	Sodium	UJ/J

### Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes, all within criteria.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Samples diluted are summarized in the following table:

Field ID	Analysis	Analyte	Dilution Factor

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

# Stratford Army Engine Plant Groundwater Data Review

**Laboratory Work Group(s): 99G007**

**Reviewer: John D. Keith**

**Date Reviewed: 8-16-99**

Sample Identification #	VOCs	SVOC	PCBs	Metals/ CN-	Cl-	Misc. Analytes
PZ-16D	X	X	X	X	X	
WC1-1S	X	X	X	X	X	
PZ-7D	X	X	X	X	X	
WC2-1I	X	X	X	X	X	X
TB0702	X					
PZ-17D	X	X	X	X	X	

Misc. analytes include alkalinity, BOD, SO<sub>4</sub>, NO<sub>3</sub>, sulfide, phosphate, ammonia, methane, TOC, DOC, COD, dissolved iron and manganese

## Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

## Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated surrogate, LCS and MS/MSD recoveries outside evaluation criteria. The narrative also indicated that the bis(2-ethylhexyl)phthalate was detected in the method blanks. These issues are addressed in the appropriate sections below. In additions, the Trip Blank sample contained medium to large air bubbles present in all vials. Since these are QC samples, no qualification of data was required. No additional problems were noted in the laboratory case narrative. Review of the cooler receipt form indicated that discrepancies were noted on the COC. The discrepancies were addressed during phone calls with URSG WC personnel.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

All samples were extracted/analyzed within holding times with the exception of samples WC1-1SRE, PZ-7DRE and WC2-1IRE re-extractions/re-analysis for SVOCs. Associated SVOC data for samples WC1-1SRE, PZ-7DRE and WC2-1IRE were qualified estimated/estimated nondetect (J/UJ).

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
TB0702	Methylene chloride	0.83 J	All
TB0702	TCE	0.29 J	All

Field ID	Analyte	New RL	Qualification
PZ-16D	Methylene chloride	0.24	U
PZ-16DDL	Methylene chloride	7.1	U
WC1-1S	Methylene chloride	0.24	U
	TCE	0.98	U
WC2-1I	TCE	0.64	U
PZ-16D	Bis(2-EHP)	28.3	U
WC1-1S	Bis(2-EHP)	4.16	U
WC1-1SRE	Bis(2-EHP)	38.3	U
PZ-7DRE	Bis(2-EHP)	8.85	U
PZ-17D	Bis(2-EHP)	2	U
PZ-16D	Zinc	0.0061	U
WC1-1S	Zinc	0.014	U
WC2-1I	Zinc	0.011	U
PZ-17D	Zinc	0.012	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

- A. The following table identifies LCS which had either the LCS or LCSD outside evaluation criteria. If the LCS/LCSD RPD were outside criteria, no qualification of data was required:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
SVG001WB	4-Chloroaniline	37/39/4	45-136/20
	Hexachlorocyclopentadiene	36/34/5	41-125/20
SVG010WB	4-Chloroaniline	87/34/87	45-136/20
	Hexachlorocyclopentadiene	53/34/43	41-125/20

Field ID	Analyte	Qualification
All samples	4-Chloroaniline	J/UJ
	Hexachlorocyclopentadiene	J/UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

Field ID	Surrogate	Recovery	Criteria	Action

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes, VOCs and metals.

No for SVOCs, PCBs, Cyanide and chloride

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS ID	Analyte	MS Recovery	MS Criteria
PZ-16D	2-Butanone	43/53/20	50-150/20
	2-Hexanone	45/53/16	50-150/20
	Bromomethane	66/67/2	72-125/20
	Carbon tetrachloride	90/127/34	62-125/20
	Chloroethane	177/212/18	65-125/20
	cis-1,2-DCE	74/207/na	75-125/20

Functional Guidelines indicates that no organic data should be qualified based on matrix spike data. All metals MS/MSD were within evaluation criteria, therefore no qualification of metals data was required.

Field ID	Analyte	Qualification

### Lab Duplicate Results

*Were lab duplicate samples analyzed as part of this SDG?*

No

*Were laboratory duplicate sample RPDs within criteria?*

NA

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Yes, however, all sample dilutions were due to elevated levels of target compounds. In most cases, the laboratory reported the sample results from the original run.

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

# Stratford Army Engine Plant Groundwater Data Review

**Laboratory Work Group(s): 99G013**

**Reviewer: John D. Keith**

**Date Reviewed: 8-16-99**

Sample Identification #	VOCs	SVOC	PCBs	Metals/ CN-	Cl-	Misc. Analytes
WC5-1S	x	x	X	x	x	x
PZ-5D	x	x	x	x	x	
PZ-1D	x	x	x	X	x	
WC2-1D	x	x	x	x	x	x
TB0706	X					

Misc. analytes include alkalinity, BOD, SO<sub>4</sub>, NO<sub>3</sub>, sulfide, phosphate, ammonia, methane, TOC, DOC, COD, dissolved iron and manganese

## Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

## Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated surrogate, LCS and MS/MSD recoveries outside evaluation criteria. These issues are addressed in the appropriate sections below. In addition, the narrative indicated calibration outliers for SVOC analysis. While this is not generally included in the data review, preliminary assessment of the problem indicates data would not be rejected. The cooler receipt form indicated several vials had air bubbles present. In many cases, at least one vial was available for analysis which contained no air bubbles. The two samples which contained medium to large air bubbles present in all vials submitted for analysis were trip blank samples. Since these are QC samples, no qualification of data was required. No additional problems were noted in the laboratory case narrative.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
MBLK1W	Bis(2-ethylhexyl) phthalate	8.7 J	Analyzed 7-12-99
MBLK1W	Aluminum	0.0354 J	Analyzed 7-21-99
MBLK1W	Calcium	0.0538 J	Analyzed 7-21-99
MBLK1W	Iron	0.0107 J	Analyzed 7-21-99
MBLK1W	Sodium	0.0961 J	Analyzed 7-21-99

Field ID	Analyte	New RL	Qualification
WC2-1D	Bis(2-ethylhexyl) phthalate	10	U
WC5-1S	Aluminum	0.041	U
WC5-1S	Iron	0.039	U
WC5-1S	Dissolved iron	0.012	U
PZ-5D	Aluminum	0.17	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

- A. The following table identifies LCS which had either the LCS or LCSD outside evaluation criteria. If the LCS/LCSD RPD were outside criteria, no qualification of data was required:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
V0G0502Q	Bromochloromethane	135/86/44	73-125/20
V0G0502Q	Chloroethane	76/64/17	74-125/20
V0G0502Q	Chloromethane	74/69/6	75-125-20
V0G0502Q	Methylene chloride	76/74/2	75-125/20
SVG004WB	3-nitroaniline	141/146/3	51-125/20
SVG004WB	4-nitroaniline	187/222/17	40-143/20
SVG004WB	Hexachlorocyclopentadiene	38/31/22	41-125/20
SVG004WB	Carbazole	214/225/5	25-175/20

All associated 3-nitroaniline, 4-nitroaniline and carbazole data was reported as nondetect, therefore no qualification of the data was required.

Field ID	Analyte	Qualification
PZ-5DDL	Chloroethane	92 J
PZ-5DDL	Chloromethane	UJ
PZ-5DDL	Methylene chloride	UJ
PZ-1DDL	Chloroethane	UJ
PZ-1DDL	Chloromethane	UJ
PZ-1DDL	Methylene chloride	UJ
WC5-1S	Hexachlorocyclopentadiene	UJ
PZ-5D	Hexachlorocyclopentadiene	UJ
PZ-1D	Hexachlorocyclopentadiene	UJ
WC2-1D	Hexachlorocyclopentadiene	UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
WC2-1D	TCMX	484/300	45-125	No action, assoc. data reported as ND
WC2-1D	DCBP	334/369	34-133	No action, assoc. data reported as ND

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS ID	Analyte	MS Recovery	MS Criteria
WC2-1D	Alkalinity	83	85-115

Field ID	Analyte	Qualification
WC2-1D	Alkalinity	J

### Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

Yes.

### **Field Duplicate Results**

*Were field duplicate samples collected as part of this SDG?*

???

### **Sample Dilutions**

*Were samples diluted which exceed 10X QAPP limits?*

Yes, however, all sample dilutions were due to elevated levels of target compounds. In most cases, the laboratory reported the sample results from the original run.

### **Additional Qualifications**

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Groundwater Data Review

Laboratory Work Group(s): 99G017

Reviewer: Craig Johnson

-Date Reviewed: 8-9-99

Sample Identification #	VOCs	SVOC	PAHs	PCBs	Metals/ CN-	Cl-
WC2-3D	X	X	X	X	X	X
TB0706	X	X	X	X	X	X
WC2-1S	X	X	X	X	X	X
DW-4D2	X	X	X	X	X	X
PZ-4D	X	X	X	X	X	X
PZ-8D	X	X	X	X	X	X
PZ-13D	X	X	X	X	X	X
WC-2D	X	X	X	X	X	X
WC-10S	X	X	X	X	X	X
TB0707	X	X	X	X	X	X

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated LCS and MS/MSD recoveries outside evaluation criteria. These issues are addressed in the appropriate sections below. In addition, the narrative indicated calibration outliers for VOC analysis. While this is not generally included in the data review, preliminary assessment of the problem indicates data would not be rejected. The cooler receipt form indicated several vials had air bubbles present. In many cases, at least one vial was available for analysis which contained no air bubbles. The two samples which contained medium to large air bubbles present in all vials submitted for analysis were trip blank samples. Since these are QC samples, no qualification of data was required. No additional problems were noted in the laboratory case narrative.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
TB0707	TCE	0.51J	Sent 7-7-99
FB0706	Bis(2-ethylhexyl) phthalate	20.7B	Collected 7-6-99
FB0706	Calcium	0.014J	Collected 7-6-99
FB0706	Zinc	0.0048J	Collected 7-6-99
FB0706	Chloride	0.225	Collected 7-6-99
MBLK1W	Bis(2-ethylhexyl) phthalate	2.09J	Analyzed 7-8-99
MBLK1W	Calcium	0.0319J	Analyzed 7-22-99
MBLK1W	Zinc	0.00714J	Analyzed 7-22-99

No qualification for TCE since samples collected on 7-7-99

Field ID	Analyte	New RL	Qualification
DW-4D2	TCE	1.6	U
PZ-4D	TCE	2.2	U
WC2-3D	Bis(2-ethylhexyl) phthalate	24.1	U
WC2-1S	Bis(2-ethylhexyl) phthalate	NA	U
PZ-4D	Bis(2-ethylhexyl) phthalate	15.8	U
PZ-8D	Bis(2-ethylhexyl) phthalate	48.2	U
PZ-13D	Bis(2-ethylhexyl) phthalate	16.3	U
WC-2D	Bis(2-ethylhexyl) phthalate	NA	U
WC-10S	Bis(2-ethylhexyl) phthalate	NA	U
WC2-1S	Zinc	NA	U
PZ-8D	Zinc	NA	U
WC-2D	Zinc	NA	U
WC-10S	Zinc	NA	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

- A. The following table identifies LCS which had either the LCS or LCSD outside evaluation criteria. If the LCS/LCSD RPD were outside criteria, no qualification of data was required:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VOG0602L/Y	Bromomethane	74/60/21	75-125/20
VOG0602L/Y	Chloromethane	72/58/22	75-125/20
VOG0602L/Y	MeCl <sub>2</sub>	79/64/21	75-125-20
VOG2501L	Bromochloromethane	127/118/8	75-125/20
VOG2501L	Chloroethane	181/148/20	65-125/20
VOG2701L/C	Bromomethane	56/66/16	72-125/20
SVG012WL/C	3,3'-Dichlorobenzidine	0/55/200	29-175/20
SVG012WL/C	4-Chloroaniline	17/30/55	45-136/20
SVG012WL/C	4-Nitroaniline	5/73/150	40-143/20
SVG012WL/C	Bis(2-chloroethoxy)methane	45/72/45	49-125/20
SVG012WL/C	Hexachlorocyclopentadiene	4/4/0	45-125/20
SVG012WL/C	n-Nitrosodiphenylamine	21/68/106	27-125/20

Field ID	Analyte	Qualification
WC2-3D	Bromomethane, chloromethane, MeCl <sub>2</sub>	J/UJ
TB0706	Bromomethane, chloromethane, MeCl <sub>2</sub>	J/UJ
WC2-1S	Bromomethane, chloromethane, MeCl <sub>2</sub>	J/UJ
DW-4D2	Bromomethane, chloromethane, MeCl <sub>2</sub>	J/UJ
PZ-4D	Bromomethane, chloromethane, MeCl <sub>2</sub>	J/UJ
PZ-8D	Bromomethane, chloromethane, MeCl <sub>2</sub>	J/UJ
TB0707	Bromomethane, chloromethane, MeCl <sub>2</sub>	J/UJ
WC2-1SDL	Chloroethane	J
WC-1SDL	Bromomethane	J/UJ
DW-4D2DL	Bromomethane	J/UJ
PZ-4DDL	Bromomethane	J/UJ
PZ-8DDL	Bromomethane	J/UJ
WC2-1S	3,3'-Dichlorobenzidine	R
WC2-1S	4-Chloroaniline	J
WC2-1S	4-Nitroaniline	R
WC2-1S	Bis(2-chloroethoxy)methane	J
WC2-1S	Hexachlorocyclopentadiene	R
WC2-1S	n-Nitrosodiphenylamine	J

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
PZ-13D	TCMX	252/221	45-125	No action, assoc. data reported as ND
WC-2D	DCBP	111/143	34-133	No action, assoc. data reported as ND

## Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD recoveries for VOC and SVOC analyses were outside evaluation criteria for some analytes. Since organic data are not qualified based on MS/MSD data alone and other QC parameters were within criteria, no qualification of data was required.

MS/MSD ID	Analyte	MS/MSD and RPD Recovery	MS/MSD and RPD Criteria
PZ-4D	Aluminum	76/40/17	80-120/20
PZ-4D	Iron	46/0/19	80-120/20
PZ-4D	Antimony	62/63/2	75-125/20
PZ-4D	Mercury	68/74/7	75-125/20
WC-10S	Phosphate	148	75-125

Field ID	Analyte	Qualification
PZ-4D	Aluminum	J
PZ-4D	Iron	R
PZ-4D	Antimony	J
PZ-4D	Mercury	J
WC-10S	Phosphate	J

## Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

No, zinc RPD was 30% for sample PZ-4D. Qualify zinc results for sample PZ-4D as J.

### **Field Duplicate Results**

*Were field duplicate samples collected as part of this SDG?*

???

### **Sample Dilutions**

*Were samples diluted which exceed 10X QAPP limits?*

Yes, however, all sample dilutions were due to elevated levels of target compounds. In most cases, the laboratory reported the sample results from the original run.

### **Additional Qualifications**

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

# Stratford Army Engine Plant Groundwater Data Review

**Laboratory Work Group(s): 99G023**

**Reviewer: John D. Keith**

**Date Reviewed: 8-17-99**

Sample Identification #	VOCs	SVOC	PCBs	Metals/ CN-	Cl-	Misc. Analytes
WC-4S	X	X	X	X	X	
WC-1S	X	X	X	X	X	
WC-5S	X	X	X	X	X	
WC2-2D	X	X	X	X	X	X
TB0708	X					
WC2-2I	X	X	X	X	X	X
WC-12S	X	X	X	X	X	X

Misc. analytes include alkalinity, BOD, SO<sub>4</sub>, NO<sub>3</sub>, sulfide, phosphate, ammonia, methane, TOC, DOC, COD, dissolved iron and manganese

## Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

All data was reported as requested on the COC.

## Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated LCS and MS/MSD recoveries outside evaluation criteria. The narrative also indicated that the bis(2-ethylhexyl)phthalate was detected in the method blanks. These issues are addressed in the appropriate sections below. In addition, the narrative indicated calibration outliers for VOC analysis. While this is not generally included in the data review, preliminary assessment of the problem indicates data would not be rejected. The cooler receipt form indicated several vials had air bubbles present. In many cases, at least one vial was available for analysis which contained no air bubbles. The VOA vials (VOC and methane analyses) for sample WC2-2D all contained small air bubbles upon receipt, therefore associated VOC and methane data were qualified estimated/estimated nondetect (J/UJ). The VOA vials (for methane only) all contained small air bubbles upon receipt for sample WC-12S, therefore associated methane data were qualified estimated/estimated nondetect (J/UJ).

The two samples which contained medium to large air bubbles present in all vials submitted for analysis were trip blank samples. Since these are QC samples, no qualification of data was required. No additional problems were noted in the laboratory case narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc.	Assoc. Samples
TB0708	Methylene chloride	0.59 J	All
TB0708	TCE	0.73 J	All
SVG010WB	Bis(2-EHP)	13.8	All
MBLK1W	Calcium	0.0319 J	All
	Zinc	0.00714 J	All

Field ID	Analyte	New RL	Qualification
WC2-2D	TCE	6.6	U
WC-5S	Bis(2-EHP)	3.45	U
WC-4S	Zinc	0.0037	U
WC-1S	Zinc	0.0065	U
WC-5S	Zinc	0.0028	U
WC2-2D	Zinc	0.0053	U
WC-12S	Zinc	0.0041	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No.

- A. The following table identifies LCS which had either the LCS or LCSD outside evaluation criteria. If the LCS/LCSD RPD were outside criteria, no qualification of data was required:

LCS ID	LCS Compound	LCS Recovery	LCS Criteria
VOG2701B	Bromomethane	56/66/16	72-125/20
VOG2901B	Bromodichloromethane	72/76/5	75-125/20
	Bromomethane	68/73/7	75-125/20
	Carbon tetrachloride	56/67/18	62-125/20
SVG010WB	4-Chloroaniline	87/34/87	45-136/20
	Hexachlorocyclopentadiene	53/34/43	41-125/20

Field ID	Analyte	Qualification
TB0708	Bromomethane	J/UJ
WC-12S	Bromomethane	J/UJ
WC-5S	Bromomethane	J/UJ
WC-4S	Bromomethane	J/UJ
WC-1S	Bromodichloromethane	J/UJ
	Bromomethane	J/UJ
	Carbon tetrachloride	J/UJ
WC-2D	Bromodichloromethane	J/UJ
	Bromomethane	J/UJ
	Carbon tetrachloride	J/UJ
WC-2I	Bromodichloromethane	J/UJ
	Bromomethane	J/UJ
	Carbon tetrachloride	J/UJ
All Samples	4-Chloroaniline	J/UJ
	Hexachlorocyclopentadiene	J/UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
WC-4S	DCB	103/137	34-133	No action, assoc. data reported as ND
WC-12S	TCMX	40/47	45-125	No action, assoc. data reported as ND reported from column within criteria

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes, Sb, Hg, Alkalinity, Ammonia, DOC, TOC, Sulfide, Nitrate, ortho-phosphate  
No for VOC, SVOC, other metals, PCB, SO<sub>4</sub>, CN, COD

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS ID	Analyte	MS Recovery	MS Criteria
WC2-2D	Alkalinity	82	85-115

Field ID	Analyte	Qualification
WC2-2D	Alkalinity	J

### Lab Duplicate Results

*Were lab duplicates samples analyzed as part of this SDG?*

Yes.

*Were laboratory duplicate sample RPDs within criteria?*

Yes.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

Yes, however, all sample dilutions were due to elevated levels of target compounds. In most cases, the laboratory reported the sample results from the original run.

### Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99K120

Reviewer: John D. Keith

Date Reviewed: 01/06/00

Sample Identification #	Sample Identification #
WC3-1D	WC-18D3
TB111899	WC3-2D

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated that some LCS recoveries were outside evaluation criteria. The case narrative indicated that some phthalates were detected in the SVOC method blanks. The case narrative did not discuss that some small air bubbles were present in one of three sample vials for trip blank TB111899 submitted with the samples for this SDG. Since the sample was a trip blank and all field samples were submitted without air bubbles, no further action was required. These issues are discussed in the sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc. (ug/L)	Assoc. Samples
SVK019WB (11-21-99)	Bis(2-ethylhexyl) phthalate	37	All in SDG

Field ID	Analyte	New RL	Qualification
none			

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, the following table below presents the LCS recoveries outside evaluation criteria:

LCS ID	LCS Compound	LCS Recovery/RPD	LCS Criteria
VOK3805B	Bromomethane	77/70/10	72-125%R / 20%RPD
	Chloromethane	86/70/20	75-125%R / 20%RPD
SVOK019WB	2,4-Dinitrophenol	49/68/34	30-151%R/20%RPD
	2-chloronaphthalene	56/66/16	60-125%R/20%RPD
	2-Nitroaniline	61/76/21	50-125%R/20%RPD
	4-chloroaniline	30/30/3	45-136%R/20%RPD
	bis(2-chloroisopropyl)ether	26/31/18	36-166%R/20%RPD
	bis(2-ethylhexyl)phthalate	23/38/19	33-129%R/20%RPD
	Hexachlorocyclopentadiene	32/34/7	41-125%R/20%RPD

Field ID	Analyte	Qualification
TB111899	Bromomethane	J / UJ
WC3-1DDL	Bromomethane	J / UJ
WC-18D3DL	Bromomethane	J / UJ
TB111899	Chloroethane	J / UJ
WC3-1DDL	Chloroethane	J / UJ
WC-18D3DL	Chloroethane	J / UJ
WC3-1D	2,4-Dinitrophenol	J / UJ
	2-Chloronaphthalene	J / UJ
	2-Nitroaniline	J / UJ
	4-Chloroaniline	J / UJ
	Bis(2-chloroisopropyl)ether	J / UJ
	Bis(2-ethylhexyl)phthalate	J / UJ
	Hexachlorocyclopentadiene	J / UJ
WC-18D3	2,4-Dinitrophenol	J / UJ
	2-Chloronaphthalene	J / UJ
	2-Nitroaniline	J / UJ
	4-Chloroaniline	J / UJ
	Bis(2-chloroisopropyl)ether	J / UJ
	Bis(2-ethylhexyl)phthalate	J / UJ
	Hexachlorocyclopentadiene	J / UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes.

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

No, see LCS/LCSD.

*Were MS/MSD recoveries within evaluation criteria?*

NA.

MS/MSD ID	Analyte	MS/MSD Recovery / RPD	MS/MSD Criteria

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No, see LCS/LCSD.

*Were laboratory duplicate sample RPDs within criteria?*

N/A.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

A. Complete the following table:

Field ID	Analysis	Dilution Factor
WC3-1DDL	VOC	25
WC-18D3DL	VOCs	25

### Additional Qualifications

*Were additional qualifications applied?*

No.

Sample	Analyte	Qualification	Comments
None			

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99K048 and 99K061

Reviewer: John D. Keith

Date Reviewed: 12/22/99

Sample Identification #	Sample Identification #
WC-9S	WS5-1D
WC-9D2	WC5-3S
WC5-2I	PZ-9D
FB110899	TB110899
WC-09D3	PZ-17D
WC-20D1	WC5-1S
WC-20S	WC-2D
TB110999	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes, with the following exception. Review of the COCs and lab cover letter indicated that sample PZ-17D was analyzed for PCBs and cyanide although not requested on the COC. Also sample WC-20D1, PCBs and cyanide were requested on the COC but not analyzed. Further review of the analytical run logs and raw data indicated that cyanide was analyzed as requested on the COC. The analytical run log for PCBs indicated that WC-20D1 was analyzed for the MS/MSD but not the original analysis. Further review of the PCB run log indicates a discrepancy that lab ID K061-03 (actually WC-20D1) is shown to be field ID *WC-9D2*. Phil Toy of EMAX indicated in a phone conversation that the cover letter was incorrect and that the samples were analyzed as requested on the COC. Phil Toy also indicated that the correct sample ID for K061-03 is WC-20D1 and that the PCB data sheet and run log are incorrect. Phil indicated that the PCB data sheet and run logs will be corrected and resubmitted.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated that some MS/MSD, LCS and surrogate recoveries were outside evaluation criteria. The case narrative also indicated that some phthalates were detected in the SVOC method blanks. The case narrative did

not discuss that some small air bubbles were present in all sample vials for the two trip blanks (TB110899 and TB110999) submitted with the samples for this SDG. Since the samples were trip blanks and all field samples were submitted without air bubbles, (except WC-20D1 had one vial with air bubbles) no further action was required. Sample WC-20D1 had one (1) vial with air bubbles upon receipt by the laboratory, the vials without air bubbles were used for the analysis of VOCs. The case narrative also did not discuss that the majority (54 of 63 analytes) of LCS/LCSD RPDs for the analysis of SVOCs were outside evaluation criteria. The LCS, MS/MSD and surrogates are discussed in the sections below. No additional problems were noted in the narrative.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

### Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc. (µg/L)	Assoc. Samples
MBLK1W	Bis(2ethylhexyl) phthalate	17	All in SDG
	Diethyl phthalate	6.4 J	
	Dimethyl phthalate	3.1 J	

Field ID	Analyte	New RL	Qualification
WC-9S	Bis(2ethylhexyl) phthalate	12	U
	Diethyl phthalate	5.9	U
	Dimethyl phthalate	2.5	U
	Nickel	5.47	U
	Zinc	32.7	U
WS5-1D	Diethyl phthalate	15	U
	Dimethyl phthalate	2.7	U
	Zinc	99.5	U
WC-9D2	Diethyl phthalate	5.1	U
	Dimethyl phthalate	2.6	U
	Zinc	89.6	U
WC5-3S	Diethyl phthalate	53	U
	Nickel	5.9	U
	Zinc	61.5	U

Field ID	Analyte	New RL	Qualification
WC5-2I	Bis(2ethylhexyl) phthalate	23	U
	Diethyl phthalate	6.2	U
	Dimethyl phthalate	2.6	U
	Zinc	29.9	U
PZ-9D	Bis(2-ethylhexyl) phthalate	11	U
	Diethyl phthalate	5.8	U
	Dimethyl phthalate	3	U
	Nickel	8.69	U
	Zinc	29.5	U
FB110899	Diethyl phthalate	4.9	U
	Zinc	45.4	U
WC-09D3	Bis(2ethylhexyl) phthalate	2.9	U
	Diethyl phthalate	8.8	U
	Dimethyl phthalate	4.4	U
	Nickel	8.04	U
	Zinc	44.2	U
PZ-17D	Diethyl phthalate	5.2	U
	Dimethyl phthalate	2.5	U
	Nickel	6.54	U
	Zinc	92.8	U
WC-20D1	Diethyl phthalate	6	U
	Dimethyl phthalate	2.7	U
	Zinc	48	U
WC5-1S	Diethyl phthalate	5.1	U
	Dimethyl phthalate	2.6	U
	Nickel	13.1	U
	Zinc	26.6	U
WC-20S	Diethyl phthalate	5.7	U
	Dimethyl phthalate	2.5	U
	Nickel	6.43	U
	Zinc	29.8	U
WC-2D	Bis(2ethylhexyl) phthalate	3.6	U
	Diethyl phthalate	5.7	U
	Dimethyl phthalate	2.8	U
	Nickel	9.65	U
	Zinc	34.3	U
WC-20D2	Diethyl phthalate	5.9	U
	Dimethyl phthalate	2.8	U
	Nickel	11.6	U
	Zinc	20	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, at least one LCS recovery in two of the five VOC LCS and the one SVOC LCS exceeded the evaluation criteria. The table below presents the LCS recoveries outside evaluation criteria:

LCS ID	LCS Compound	LCS Recovery/RPD	LCS Criteria
VOK2205	4-Methyl-2-Pentanone	74/125/52	50-150%R / 20%RPD
VOK2505	2-Hexanone	113/89/24	50-150%R / 20%RPD
	4-Methyl-2-Pentanone	128/76/52	50-150%R / 20%RPD
SVK010WL	All analytes except: 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2,4,5-Trichlorophenol 2-Methylphenol 3-Nitroaniline 4-Methylphenol Hexachlorobutadiene Hexachlorocyclopentadiene	All other analytes >20% RPD	20 %RPD

Field ID	Analyte	Qualification
WC-9S	4-Methyl-2-Pentanone	J / UJ
WS5-1D	4-Methyl-2-Pentanone	J / UJ
WC-9D2	4-Methyl-2-Pentanone	J / UJ
WC5-3S	4-Methyl-2-Pentanone	J / UJ
WC5-2I	4-Methyl-2-Pentanone	J / UJ
PZ-9D	4-Methyl-2-Pentanone	J / UJ
WC5-1S	4-Methyl-2-Pentanone	J / UJ
WC5-1S	2-Hexanone	J / UJ
PZ-17DDL	4-Methyl-2-Pentanone	J / UJ
PZ-17DDL	2-Hexanone	J / UJ
WC-20D1DL	4-Methyl-2-Pentanone	J / UJ
WC-20D1DL	2-Hexanone	J / UJ
All samples in SDG	All SVOC Analytes	J / UJ

Since the majority of SVOC analytes RPDs were outside evaluation criteria and based on professional judgement, all SVOC analytes for all samples in the SDG were qualified estimated/estimated nondetect (J/UJ). One LCS and seven LCSD recoveries were outside evaluation criteria, but have been qualified based on the LCS RPDs, therefore no further qualification of the data is required.

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
WC5-3S	Phenol-d5	12	25-125	Data previously qualified based on LCS RPD data, no further quals.
	Terphenyl-d14	136	42-126	
CPK022WB	Decachlorobiphenyl	135/137	34-133	No qual since all sample data ND

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery / RPD	MS/MSD Criteria
WC-20D1	1,1-Dichloroethene	115/131/11	75-125/20
	Chloromethane	94/115/20	75-125/20
	Cis-1,2-Dichloroethene	333/945/--	75-125/20
	Trichloroethene	85/142/--	71-125/20
WC-20D1	4,6-Dinitro-2-Methylphenol	147/137/7	26-134/20
	4-Chloroaniline	41/49/19	45-136/20
	Bis(2-Ethylhexyl)Phthalate	191/114/50	33-159/20

Since cis-1,2-dichloroethene and trichloroethene sample concentrations exceeded spike concentrations by a factor of five times (5X) or greater, no qualification of the data was required. Since Functional Guidelines indicates no qualification of organic data based on MS/MSD data alone and the chloromethane, 1,1-dichloroethene, 4,6-dinitro-2-methylphenol, 4-chloroaniline bis(2-ethylhexyl)phthalate LCS data were within evaluation criteria, no qualification of the data was required.

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No.

*Were laboratory duplicate sample RPDs within criteria?*

NA.

## Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

???

## Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

No.

A. Complete the following table:

Field ID	Analysis	Analyte	Dilution Factor
PZ-9D	VOC	1,1-DCE	50
		cis-1,2-DCE	50
		TCE	50
PZ-17D	VOCs	cis-1,2-DCE	10
		TCE	10
WC-20D1	VOCs	cis-1,2-DCE	25
		TCE	25
WC-2D	VOCs	cis-1,2-DCE	50
		Vinyl chloride	50
WC5-1D	Metals	All by ICP	10
WC-9D2	Metals	All by ICP	10

## Additional Qualifications

*Were additional qualifications applied?*

No.

Field ID	Analyte	Qual

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99K070 and 99K082

Reviewer: John D. Keith

Date Reviewed: 01/04/00

Sample Identification #	Sample Identification #
WC2-2D	WC-21S
WC-21D1	WC2-5S
WC-21D2	PZ-4D
FB111099-DI	FB111099-P
FB111099	TB111099
MWCD-99-01B	MWCD-99-02B
PZ-16D	MWCD-99-02A
PZ-5D	WC-3S
TB111199	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated that some MS/MSD, LCS and surrogate recoveries were outside evaluation criteria. The case narrative indicated that some samples required reanalysis due to matrix effects or carryover from previous sample analyses. The case narrative also indicated that some phthalates were detected in the SVOC method blanks. The case narrative did not discuss that some metals (Ca, Fe, and Zn) were detected in the associated method blanks below the reporting limit. The method blank, LCS, MS/MSD and surrogates are discussed in the sections below. The case narrative did not discuss that some small air bubbles were present in two of three sample vials for trip blank TB111099 submitted with the samples for this SDG. Sample WC-21D1 had one (1) vial with a large air bubble upon receipt by the laboratory, the vials without air bubbles were used for the analysis of VOCs for samples TB111099 and WC-21D1. No additional problems were noted in the narrative.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc. (ug/L)	Assoc. Samples
MBLK1W	Diethyl phthalate	8 J	All in SDG
	Dimethyl phthalate	3.5 J	
	Calcium	13.9 J	
	Iron	7.48 J	
	Zinc	8.15 J	

Field ID	Analyte	New RL	Qualification
WC2-2D	Diethylphthalate	9.8	U
WC2-2D	Dimethyl phthalate	9.8	U
WC-21S	Diethylphthalate	9.7	U
	Dimethyl phthalate	9.7	U
	Zinc	26	U
WC-21D1	Diethylphthalate	9.7	U
	Dimethyl phthalate	9.7	U
	Zinc	25	U
WC2-5S	Diethylphthalate	9.9	U
	Dimethyl phthalate	9.9	U
	Iron	6.1	U
WC-21D2	Diethylphthalate	9.5	U
	Dimethyl phthalate	9.5	U
	Zinc	23	U
PZ-4D	Diethylphthalate	10	U
	Dimethyl phthalate	10	U
FB111099-DI	Diethylphthalate	9.7	U
	Dimethyl phthalate	9.7	U
	Iron	0.2	U
	Zinc	0.04	U
FB111099-P	Diethylphthalate	9.5	U
	Dimethyl phthalate	9.5	U
FB111099	Diethylphthalate	9.6	U
	Dimethyl phthalate	9.6	U
MWCD-99-01B	Diethylphthalate	9.7	U
	Zinc	20	U
MWCD-99-02B	Diethylphthalate	12	U
	Dimethyl phthalate	9.7	U
	Zinc	20	U

Field ID	Analyte	New RL	Qualification
PZ-16D	Diethylphthalate	9.9	U
	Dimethyl phthalate	9.9	U
	Zinc	24	U
MWCD-99-02A	Diethylphthalate	9.7	U
	Dimethyl phthalate	9.7	U
	Zinc	20	U
PZ-5D	Diethylphthalate	9.8	U
	Dimethyl phthalate	9.8	U
	Zinc	20	U
WC-3S	Diethylphthalate	9.9	U
	Dimethyl phthalate	9.9	U
	Zinc	20	U

### Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, the following table below presents the LCS recoveries outside evaluation criteria:

LCS ID	LCS Compound	LCS Recovery/RPD	LCS Criteria
VOK2905B	2-Hexanone	105/85/21	50-150%R / 20%RPD
	Bromoform	108/86/22	75-125%R / 20%RPD
	Bromomethane	81/102/23	72-125%R / 20%RPD
	Chloromethane	88/113/25	75-125%R / 20%RPD
VOK3005B	Bromomethane	65/77/16	72-125%R / 20%RPD
	Chloromethane	82/53/43	75-125%R / 20%RPD
IPK042WL	Calcium	108/143/28	80-120%R / 20%RPD
	Iron	107/129/19	80-120%R / 20%RPD

Field ID	Analyte	Qualification
WC2-2D	2-Hexanone, Bromoform, Bromomethane, Chloromethane	J / UJ
WC-21S	2-Hexanone, Bromoform, Bromomethane, Chloromethane	J / UJ
WC-21D1	2-Hexanone, Bromoform, Bromomethane, Chloromethane	J / UJ
WC2-5S	2-Hexanone, Bromoform, Bromomethane, Chloromethane	J / UJ
WC-21D2	2-Hexanone, Bromoform, Bromomethane, Chloromethane	J / UJ
PZ-4D	2-Hexanone, Bromoform, Bromomethane, Chloromethane	J / UJ
FB111099-P	2-Hexanone, Bromoform, Bromomethane, Chloromethane	J / UJ
TB111099	2-Hexanone, Bromoform, Bromomethane, Chloromethane	J / UJ
All samples in SDG	All SVOC analytes	J / UJ
All samples in SDG	All Ca and Fe data	J / UJ

### Laboratory Control Sample (continued)

VOC and metals data for the SDG were qualified as summarized above. Since the majority of SVOC analytes in the LCSD and the RPDs were outside evaluation criteria, all SVOC analytes for all samples in the SDG were qualified estimated/estimated nondetect (J/UJ). No further qualification of the data was required based on LCS data.

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
PZ-16D	Terphenyl-d14	32	42-126	Only 1 surrogate outside criteria, no qual
WC-21D1	Tetrachloro-m-xylene	114/161	45-125	No qual since all sample data ND

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes – metals.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery / RPD	MS/MSD Criteria
WC2-2D	Magnesium	146/137/1	75-125/20
	Sodium	40/20/20	75-125/20

Since magnesium and sodium sample concentrations exceeded spike concentrations by a factor of five times (5X) or greater, no qualification of the data was required.

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No, See MS/MSD

*Were laboratory duplicate sample RPDs within criteria?* N/A

## Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

???

## Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

A. Complete the following table:

Field ID	Analysis	Dilution Factor
PZ-16D	VOC	10
WC-21D1	VOCs	25
WC2-5S	VOCs	10
WC-21D2	VOCs	5
PZ-4D	VOCs	5 and 200
WC2-2D	Metals-ICP	5
	Antimony	2

## Additional Qualifications

*Were additional qualifications applied?*

Yes.

Sample	Analyte	Qualification	Comments
WC2-2D	Bis(2-ethylhexyl)phthalate	9.8 U	Professional judgement
WC-21S	Bis(2-ethylhexyl)phthalate	39 U	Professional judgement
PZ-5D	Bis(2-ethylhexyl)phthalate	9.8 U	Professional judgement

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99K085 and 99K093

Reviewer: John D. Keith

Date Reviewed: 01/06/00

Sample Identification #	Sample Identification #
WC2-3D	PZ-11D
WC2-3I	WC2-3S
WC-12D3	MWCD-99-01A
WC2-2I	TB111299
WC2-4I	WC2-5I
WC-1S	WC2-4S
WC2-6I	PZ-1D
FB111599	TB111599

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated that some MS/MSD, LCS and surrogate recoveries were outside evaluation criteria. The case narrative did not discuss that some metals were detected in the associated method blanks below the reporting limit. The case narrative did not indicate that limited volume of sample WC2-5I was received for the analysis of cyanide and PCBs. The sample analyzed the full volume of sample received. These issues are discussed in the sections below.

### Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc. (µg/L)	Assoc. Samples
MBLK1W (11-26-99)	Manganese Nickel Zinc	3.15 J 11.8 J 2.7 J	WC2-4I WC-1S WC2-4S FB111599 WC2-5I WC2-6I PZ-1D FB111599DL
MBLK1W (11-20-99)	Chromium Iron Manganese Nickel	50.5 216 2.76 J 18.4 J	WC2-3D PZ-11D WC2-3I WC2-3S WC-12D3 MWCD-99-01A WC2-2I

Field ID	Analyte	New RL	Qualification
WC2-3D	Iron	540	U
WC2-3D	Nickel	8.04	U
PZ-11D	Iron	590	U
PZ-11D	Nickel	21.6	U
WC2-3I	Nickel	19.9	U
WC2-3S	Iron	613	U
WC2-3S	Nickel	19	U
WC-12D3	Iron	530	U
WC-12D3	Nickel	30.1	U
MWCD-99-01A	Iron	630	U
WC2-2I	Nickel	21.6	U
WC2-4I	Zinc	3.85	U
WC2-5I	Zinc	11.9	U
WC-1S	Zinc	3.67	U
WC2-4S	Zinc	9.9	U
WC2-6I	Nickel	12.4	U
WC2-6I	Zinc	8.91	U
PZ-1D	Nickel	43.7	U
PZ-1D	Zinc	8.9	U
FB111599	Manganese	2.1	U
FB111599	Zinc	3.1	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, the following table below presents the LCS recoveries outside evaluation criteria:

LCS ID	LCS Compound	LCS Recovery/RPD	LCS Criteria
VOK3105B	Bromomethane	65/63/3	72-125%R / 20%RPD
VOK3205B	Bromomethane	63/56/12	72-125%R / 20%RPD
	Chloroethane	79/98/22	65-125%R / 20%RPD
VOK3305B	Bromomethane	56/59/5	72-125%R / 20%RPD
VOK3405B	Bromomethane	68/68/1	72-125%R / 20%RPD
SVOK016WB	See below		

Field ID	Analyte	Qualification
All in SDG	Bromomethane	J / UJ
MWCD-99-01A	Chloroethane	J / UJ
WC-1S	Chloroethane	J / UJ
WC2-4S	Chloroethane	J / UJ
WC2-6I	Chloroethane	J / UJ
PZ-1D	Chloroethane	J / UJ
WC2-3DDL	Chloroethane	J / UJ
PZ-11DDL	Chloroethane	J / UJ
WC2-12D3DL	Chloroethane	J / UJ
WC2-2IDL	Chloroethane	J / UJ
WC2-4IDL	Chloroethane	J / UJ
WC2-5IDL	Chloroethane	J / UJ
WC2-6I	Anthracene	J

VOC and metals data for the SDG were qualified as summarized above. Ten (10) SVOC analytes in the LCS and twenty-nine (29) in the LCSD were reported above evaluation criteria, since all SVOC analytes for all samples in the SDG were reported as nondetect (except anthracene for WC2-6I) no qualification of the SVOC data was required. Anthracene for sample WC2-6I was qualified estimated (J) based on the LCS data. No further qualification of the data was required based on LCS data.

## Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
WC2-3S	2-Fluorobiphenyl	35	43-125	Qual all base neutral fraction compounds J/UJ
	Terphenyl-d14	35	42-126	
WC2-3SRE	2-Fluorobiphenyl	38	43-125	Qual all base neutral fraction compounds J/UJ
	Terphenyl-d14	40	42-126	
FB111599	Tetrachloro-m-xylene	165/133	45-125	No qual since all sample data ND
	Decachlorobiphenyl	106/142	34-133	

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery / RPD	MS/MSD Criteria
WC2-3S (VOCs)	1,1-Dichloroethane	59/72/9	72-125/20
	2-Hexanone	65/85/26	50-150/20
	Bromoform	69/86/22	75-125/20
	Bromomethane	67/69/3	72-125/20
	Chloroethane	128/171/28	65-125/20
	Chloromethane	134/146/8	75-125/20
WC2-3SRE	See Below		
WC2-3S	Calcium	132/140/2	80-120/20
	Magnesium	113/125/1	80-120/20
	Sodium	-1400/-1400/0	80-120/20

Since Functional Guidelines indicates no qualification of organic data based on MS/MSD data alone and the associated LCS data were within evaluation criteria, no qualification of the VOC data was required. Fifteen SVOC MS recoveries, four SVOC MSD recoveries and the RPDs for all SVOC analytes (except 2-methylphenol and 4-methylphenol) associated with sample WC2-3S were outside associated evaluation criteria. The base neutral fraction SVOCs for sample WC2-3S were previously qualified estimated nondetect low surrogate recovery. Since all MS/MSD RPDs were outside evaluation criteria, qualify the acid fraction SVOCs for sample WC2-3S based on professional judgement. Since magnesium and sodium sample concentrations exceeded spike concentrations by a factor of five times (5X) or greater, no qualification of the calcium or magnesium data was required. Calcium data for sample WC2-3S was qualified estimated (J), based on MS recoveries.

### Lab Duplicate Results

*Were lab duplicate samples collected as part of this SDG?*

No, See MS/MSD

*Were laboratory duplicate sample RPDs within criteria?* N/A

### Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

A. Complete the following table:

Field ID	Analysis	Dilution Factor
WC2-3D	VOC	25
PZ-11D	VOCs	25
WC2-3I	VOCs	25
WC-12D3	VOCs	25
WC2-2I	VOCs	10
WC2-4I	VOCs	10
WC2-5I	VOCs	25
WC2-6I	VOCs	200
PZ-1D	VOCs	200

### Additional Qualifications

*Were additional qualifications applied?*

Yes.

Sample	Analyte	Qualification	Comments
WC2-4I	Bis(2-ethylhexyl)phthalate	9.5 U	Professional judgement

## Stratford Army Engine Plant Data Review

Laboratory Work Group(s): 99K104 and 99K113

Reviewer: John D. Keith

Date Reviewed: 01/06/00

Sample Identification #	Sample Identification #
WC-4S	WC-13S
WC-16D3	PZ-13D
WC-10S	WC-5S
PZ-8D	FB111699
TB111699	WC-12S
WC-17D3	WC3-2I
WC-19D1	WC-19S
WC3-2D	WC3-1I
TB111799	

### Data Package Completeness

*Were all items delivered as specified in the QAPP and COC?*

Yes.

### Laboratory Case Narrative

*Were problems noted in the laboratory case narrative which are not discussed in subsequent sections?*

The laboratory case narrative indicated that some MS/MSD, LCS and surrogate recoveries were outside evaluation criteria. The case narrative indicated that some phthalates were detected in the SVOC method blanks. The case narrative did not discuss that some metals were detected in the associated method blanks below the reporting limit. The case narrative did not discuss that some small air bubbles were present in two of three sample vials for trip blank TB111699 submitted with the samples for this SDG. Since the sample was a trip blank and all field samples were submitted without air bubbles, no further action was required. These issues are discussed in the sections below.

The case narrative did not discuss that vial 3 of 3 for sample PZ-8D was received with no date or collection time or that the date and time listed on the other sample vials were used for vial three. The narrative also did not discuss that one 1-L amber bottle for SVOCs for sample WC3-2D was received broken by the laboratory and that the

corrective action was to use a duplicate sample bottle provided in the shipment. The narrative also did not discuss that the sample bottle for cyanide and metals for sample WC2-3D was not received and that the client was called and the corrective action was to submit the samples with the November 19, 1999 sample shipment.

## Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes.

## Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes.

Blank ID	Analyte	Conc. (ug/L)	Assoc. Samples
SVK019WB (11-21-99)	Bis(2-ethylhexyl) phthalate	37	All in SDG

Field ID	Analyte	New RL	Qualification
WC3-2D	Bis(2-ethylhexyl) phthalate	9.7	U

## Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

No, the following table below presents the LCS recoveries outside evaluation criteria:

LCS ID	LCS Compound	LCS Recovery/RPD	LCS Criteria
VOK3305B	Bromomethane	56/59/5	72-125%R / 20%RPD
VOK3405B	Bromomethane	68/68/1	72-125%R / 20%RPD
VOK3505B	Bromomethane	69/70/1	72-125%R / 20%RPD
VOK3605B	Bromomethane	71/67/6	72-125%R / 20%RPD
VOK3705B	Bromomethane	77/70/10	72-125%R / 20%RPD
	Chloromethane	86/70/20	75-125%R / 20%RPD
SVOK019WB	2,4-Dinitrophenol	49/68/34	30-151%R/20%RPD
	2-Chloronaphthalene	56/66/16	60-125%R/20%RPD
	2-Nitroaniline	61/76/21	50-125%R/20%RPD
	4-Chloroaniline	30/30/3	45-136%R/20%RPD
	Bis(2-Chloroisopropyl)Ether	26/31/18	36-166%R/20%RPD
	Bis(2-Ethylhexyl)Phthalate	23/38/19	33-129%R/20%RPD
	Hexachlorocyclopentadiene	32/34/7	41-125%R/20%RPD

Field ID	Analyte	Qualification
All in SDG	Bromomethane	J / UJ
All in SDG	2,4-Dinitrophenol 2-Chloronaphthalene 2-Nitroaniline 4-Chloroaniline Bis(2-Chloroisopropyl)Ether Bis(2-Ethylhexyl)Phthalate Hexachlorocyclopentadiene	J / UJ

### Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

No.

Field ID	Surrogate	Recovery	Criteria	Action
WC-17D3	Terphenyl-d14	32	42-126	No Qual since only 1 per fraction outside
WC3-2I	Tetrachloro-m-xylene	58/44	45-125	No qual since data reported from initial column

### Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples reported as part of this SDG?*

Yes.

*Were MS/MSD recoveries within evaluation criteria?*

No.

MS/MSD ID	Analyte	MS/MSD Recovery / RPD	MS/MSD Criteria
WC3-2D	Bromomethane	67/66/2	75-125/20
WC3-2D	3,3'-dichlorobenzidine	46/27/50	29-175/20
	3-nitroaniline	54/40/29	51-125/20
	4-chloroaniline	38/30/24	45-136/20
	4-nitroaniline	59/41/36	40-143/20
	bis(2-chloroisopropyl)ether	35/33/7	36-166/20
WC3-2D	Calcium	144/134/8	80-120/20
	Magnesium	136/110/4	80-120/20
	Manganese	174/153/1	80-120/20
	Sodium	-1360/-1060/25	80-120/20
	Antimony	58/55/4	75-125/20
	Arsenic	126/127/1	80-120/20
	Selenium	128/126/1	80-120/20
	Thallium	121/122/1	80-120/20

Since Functional Guidelines indicates no qualification of organic data based on MS/MSD data alone and the associated LCS data were within evaluation criteria, no qualification of the VOC data was required. SVOCs 4-chloroaniline, 4-nitroaniline and bis(2-chloroisopropyl)ether outside MS/MSD criteria were also outside criteria in the LCS and therefore previously qualified estimated/estimated nondetect (J) based on the LCS. Since magnesium manganese and sodium sample concentrations exceeded spike concentrations by a factor of five times (5X) or greater, no qualification of the calcium or magnesium data was required. Calcium, thallium and antimony data for sample WC3-2D was qualified estimated (J), based on MS recoveries.

### Lab Duplicate Results

*Were lab duplicates samples collected as part of this SDG?*

No, see MS/MSD.

*Were laboratory duplicate sample RPDs within criteria?*

N/A.

### Field Duplicate Results

*Were field duplicates samples collected as part of this SDG?*

???

### Sample Dilutions

*Were samples diluted which exceed 10X QAPP limits?*

A. Complete the following table:

Field ID	Analysis	Dilution Factor
WC2-3D	VOC	25
PZ-11D	VOCs	25
WC2-3I	VOCs	25
WC-12D3	VOCs	25
WC2-2I	VOCs	10
WC2-4I	VOCs	10
WC2-5I	VOCs	25
WC2-6I	VOCs	200
PZ-1D	VOCs	200

### Additional Qualifications

*Were additional qualifications applied?*

Yes.

Sample	Analyte	Qualification	Comments
WC2-41	Methylene Chloride	15 U	Professional judgement